LUST

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M. Vettic Schrunk.
Isosa Department of Natura Resources
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Ocar Mr. Schrühe

FPOR HEE compound to coup and SPN Corporation received the IDNP letter dated March 22, 2005, that discipled the No. Astron Required classification of the referenced Marley Pump facility. The pumpose of time ketter is to monty the IDNP FUST Section that monitoring wells located at the law after will not be abundanced memoritately.

The monoraring wells will be unitzed to assessment of a TCE release regulated under the IDNR contaminated Sites Section. I poin closure of the TCE project, the monitoring wells will be aboutlyined and we will provide the well abandoninent records and documentation to both the 11-81 and Contaminated Sites Sections for desire.

on have any questions, please contact FPOCH at (563) 355-9785.

Special

TPCCH Environmental Group 11 C

Robin Hasman

Mid Continent Operations Manager

Co. Dan McGrade, SPX Corporation



File Name .

Senders Initials STATE OF TOWA

THOMAS J. VILSACK, GOVERNOR SALLY J. PEDERSON, LT. GOVERNOR

DEPARTMENT OF NATURAL RESOURCES

March 20, 2002

CERTIFIED MAIL

Dan McGrade SPX Corporation 700 Terrace Point Drive P.O. Box 3301 Muskegon, MJ 49443-3301

EPPEREZOCAZOCO

SUBJECT

Tier 2 SCR Review – Marley Pump Company 500 E. 59th Street in Davemport, Iowa Tank Registration Nos. 7910059 & 9217486

Nos.

& 9LTB63

Dear Mr. McGrade:

The Department of Matural Resources received the REVISED Tier 2 SCR for the referenced sites. Thank you for the submittal. We have conducted a completeness review of the report as described in subrule 567-135.10(11) of the lowa Administrative Code. Based on our review, deficiencies listed in the August 17, 2001. IDNR letter rejecting the original Tier 2 SCR have generally been addressed. The following deficiency, numbered as in the August 17, 2001 IDNR letter, has not been adequately addressed:

12 Inadequate. Laboratory Data Sheets were not provided for the following groundwater samples: MW-5, MW-6, MW-7 collected on 3-29-99; MW-3-95 collected 10/27/99; MW-2, MW-1, MW-3, MW-4, MW-1-95, MW-3-95, MW-4-95, MW-5-95, MW-6-95, and MW-7-95 collected 12-10-98.

Considering the most recent Tier 2 SCR submission, such is considered to be complete if it contains all the information and data required by the department's administrative rules and guidance regarding Tier 2 evaluations and reporting. We have the following comments:

- 1. The virtual dwarer Source Tier 2 Receptor Summary table listed the protected groundwater source (PCWS) eceptor as "L" = low risk. This designation of low risk is questioned since the site is not a princeted groundwater source (K = 0.1859 m/day) (see p. 4). It appears the question "Include Preliminary Pathway results in analysis" was answered "no" in the Tier 2 software = Groundwater Source Pathway Evaluation section. The question should have been answered "yes" (refer to page 58 of the lowa RBCA Tier 2 SMR Software for Windows User's Manual, Version 2.30) (output would have been "N").
- The current risk was not listed for actual and potential receptors on the Groundwater Source and Soil Leaching Tier 2 Receptor Summary tables (output would/should have been 'N').

- 2 Soil Boring Logs Monitoring Well Diagrams were not provided for MW-10, B-11, and B-12. The department acknowledges the field screening results were provided in the Field Screening Results table. However, the Soil Boring Logs Monitoring Well Diagrams for MW-10, B-11, B-12 should have been provided.
- 4. A Field Screening Map was not provided.

The following additional problems also do NOT require correction, but are identified below for the acterities and benefit of your consultant.

- Concerning item #2 of the 8/17/01 IDNR letter: Incomplete: The Groundwater Analytical Data table is maccurate, contrary to the 2/18/02 cover letter. The benzene, toluene, ethylbenzene, xylenes (BTEX) data for groundwater sample MW-1 (10/20/93) was entered incorrectly in the table, and the sampling date for MW-1 (5/3/95) was entered incorrectly as 6/3/95. The department acknowledges revising the data table will not affect the groundwater maximums and contaminant plumes.
- 2 Concerning item #3 of the 8/17/01 IDNR letter: Incomplete: The parameters listed in the Site Hydrogeology section (p. 5) do not correspond to the Soil and Groundwater Source Dimension Plume Maps (see Attachments 18 and 19), and page 5 also doesn't correspond to the Tier 2 software.
- 3 Concerning item #4 of the 8/17/01 IDNR letter. Incomplete: The department acknowledges the range of plume flow of 30° was used in the Tier 2 software. However, page 5 of the Tier 2 report does not correspond to the Tier 2 software.
- 4 The City of Davenport should have been contacted for the benchmark elevation (refer to page 13 of the revised Tier 2 report)

However, the department is accepting a "No Action Required" site classification. No additional action is required at this time. We will update our records to show the change in status.

A no further action certificate for this site may be obtained by submitting to the department the following

- An accurate and complete legal description of the site, as found in the deed or mortgage, NOTE: A
 legal description obtained from a tax form is not acceptable
- Completed Abandoned Water Well Plugging Records (DNR Form \$42-1226) for the wells and soil borings that accessed groundwater at the site. Please be aware the recipient of the no further action certificate is responsible for insuring all wells and borings that accessed groundwater are abandoned and plugged according to Chapter \$67-39. Iowa Administrative Code (IAC). Contact the designated county agent prior to plugging the abandoned wells and borings. Questions pertaining specifically to the procedures to be followed for plugging wells and borings should be directed to the Water Supply Section at \$15.725-0268 or the designated county agent. You may retain wells at the site for future use. In a letter please identify, the wells to be retained, the reason for retaining the wells and written plan for well maintenance and security.

The legal description and Abandoned Water Well Plugging Records should be sent to LUST Coordinator at the Underground Storage Tank Section, Department of Natural Resources, Wallace State Office Boilding, 502 East North Street, Des Moines, IA 50319-0034.

In all correspondence regarding this project, please include the LUST number, which is indicated in the Subject heading of this letter. If you have questions or we may be of assistance, please contact me at \$15-381-4704.

Sincereis.

Jano Bokunk

VERNE SCHRENK ENVIRONMENTAL SPECIALIST UNDERGROUND STORAGE TANK SELLION

9h6Sprys/HDpat die

Linda Office 6
 CAB Fusiness Services, Inc.
 Tim Rhinehart, EPOCH, 985 Lincoln Road, Suite 220, Bettendorf, IA 52722

SENDER STREET FOR SECTION Complete items 1, 2, and 3. Also complete. Hern 4 if Restricted Delivery is deemed. Print your name and address on the reve so that we can return the card to you. Affact this card to the back of the mail or on the front if space permits. \\f Amulia Andressad to DAN MUGRADI SPA CORPORA LIGIS TOO TERRICE PLANT DRIVE PO 803, 1501 rvice Type MUSKEGON Mr 49443 3361 Petur Receipt for Manhaore C Inquired Mail CI C.O.D 4. Restricted Delivery? (Extra Fee) Li Am



STATE OF IOWA

THOMAS J. VIUSACH, GOVERNOR SALLY J. PROEASON, CT. GOVERNOR

DEPARTMENT OF NATURAL RESOURCES
JEFFREY R. WONK, DIRECTOR

January 15, 2002

CERTIFIED MAIL

Dan VanZusden Marley Pamp Company 500 Lass 5th Davennest, JA 17807

RE FISAL NOTICE Mailey Pump Company at 506 hast 59th in Davenport, Iowa

Fank Registration No. 791(056)

LUST NOT THE

LUST No. 9LTB63

Dear Mr. Vanzfürden

The department sent a notice dated August 17, 2001, requiring completion of revisions to the Tier 2 Site 4 heating Keport. The department has not received the report and it continues to be overdue.

The land is final notice that unless the report is submitted no later than ten days after receipt of this lester in administrative order may be issued requiring compliance.

Failure to meet this compliance deadline may result in the assessment of administrative penalties. The department has the authority to assess administrative penalties of up to \$10,000 for these types of streaming.

In all correspondence regarding this project, include the UUST number, which is indicated in the Subject heading of this jetter. It was have questions please contact the undersigned by telephoning \$15/281-8135.

CLIST & CLERK

UNDERGROUND STORAGE TANK SECTION

381 care 245 % 1584

oc Field OPice 5 GAB Robins

> R. Linathan Paetz, Dahl & Associates, Inc., 985 Lincoln Road, Suite 220, Bertendorf, IA, 52222-4156



Senders Initials

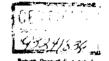
STATE OF

THOMAS J. VILSACK GOVERNOR SALLY J. PEDEPSON, LT. GOVERNOR DEPARTMENT OF MATURAL RESOURCES JEFFREY R. WONK, DIRECTOR

August 17, 2001

CERTIFIED MAIL

Mr. Ruhard Nelson Marley Punin Company 500 F 34th Street Davemont, IA 52808



SCRIFCE.

Lier 2 Completeness Review - Marley Pump Company 500 E. 59th Street, Davemport, Iowa Registration No.'s: 9217486 & 7910059

9LTB63 & # 2014 U

Dear Mr. Nelson.

LUST Note:

The Department of Natural Resources (DNR) has received a Tier 2 Site Cleanup Report for the referenced site. Thank you for the submittal. We have conducted a completeness review of the report as described in subrole 567-135.10(11) of the lowa Administrative Code. A Tier 2 SCR is considered to be complete. if it contains all the information and data required by the department's administrative rules and guidance regarding 1 at 2 evaluations and reporting. Based on our review, the referenced report is incomplete and unaccentable because

- The soil source investigation and location is questioned. The department "reluctantly accepted" the ore-RBCA SCR for 91.TB63 (4/18/96 IDNR letter). In the 4/18/96 department letter, the department noted "no soil samples were obtained form MW-4-95 to MW-7-95". The vertical extent of contamination in MW-4-95 was not investigated adequately, and "PID readings were not recorded due to instrument malfunction" for MW-5-95 trefer to 9LTB63 pre-RBCA SCR). Note, MW-5-95 is the groundwater source. The department acknowledges the PID readings were non-detect for MW-6-95 and MW-7-95. Please conduct field screening and soil sampling according to Tier 1 Guidance at MW-4-95 and MW-5-95.
- The Groundwater Analytical Data table is inaccurate and incomplete. Free product was first observed in MW-2 on 3/27/95. However, groundwater samples were not collected at that time (see 4/13/1995). Being Consultants Progress Report #1). Therefore, free product defaults should be applied (see Tier ? (inidance, p. 81). The benzene, toluene, ethylbenzene, xylenes (BTEX) data for groundwater sample MW-1 (10/20/93) were entered incorrectly in the table, and the sgrapling date for MW-1 (5.3/95) was incorrectly entered as 6/3/95. Please revise the data table accordingly.
- 3 Phe groundwater and soil source width (Sw) and length (W) parameters are not maximum and are questioned. The parameters listed in the Site Hydrogeology section (p. 5) do not correspond to the Soil and Crowndwater Source Dumension Plume Mans (see Attachments 18 and 19). Also, the Soil Source Dimension plume is not closed. The interpolation range is inadequate. Please use the maximum Sw and W values. Revise all affected Fier 2 sections.

- 4. Examining the groundwater flow maps in the Tier 2 evaluation and pre-RBCA SCR indicates the current range of plane flow (0°, p. 5) is inadequate. The groundwater flow direction has historically been both to the southwest and southeast (see 91.TB63 pre-RBCA SCR). The range of plane flow should be sufficient to account for the greater of the current lateral extent of the measured groundwater contamination plane or the historically observed variation in groundwater flow direction (1 or 2 Guidance, p. 20). Please revise accordingly. Revise all affected for 2 sections.
- 5 The hydraulic conductivity values are questioned. The department acknowledges the inability to print graphs. However, the data provided is not labeled. The units are not provided for each column and the weighting assigned to each data point was not shown. Please provide the necessary information.
- 6 The Groundwater well survey is questioned. The pre-RBCA SCR (for both \$LTS\$4 and 9LTB63) indicated "3 deep wells exist on-site". However, only one of the 3 wells was discussed in the Groundwater Well Receptor Survey section (p. 14). Note, "a non-drinking water well is any groundwater well not defined as a drinking water well including an abundance groundwater well which is not properly plugged" (Tier 2 Guidance, p. 32). Please include all 3 wells in the receptor survey or provide adequate justification and documentation (i.e., abundance well plugging records) for not including all 3 wells in the receptor survey. Also, the dates when the Iowa Geological Survey Bureau and the Scott County Health Department were contacted for well survey information were not provided. Please submit the necessary information.
- The Commingled Plume Discussion incorrectly stated "there was a previous release at this site that had received closure in 1994" ip 16). LUST No. 8LTS84 did not receive 'closure' in 1994. The pre-RBCA Revineu SCR for 8LTS84 was not accepted (see 3/30/94 IDNR letter). Please revise the Commingled Plume Discussion.
- 8 The I ree Product report section is incomplete (p. 16). The date of the last free product report submittal and the status of free product recovery were not provided. Please complete the discussion.
- 9 The Groundwater Benzene Contaminant plume is not closed to the northwest. The interpolation range is inadequate. Please revise.
- 10. The groundwater elevations for MW-8 and MW-9 should not have been evaluated in constructing the Groundwater Flow Direction Map since they were measured one month later than the majority of the monitoring wells. Please revise accordingly.
- The Well Survey Map does not show the location of the 3 on-site wells (refer to deficiency #1).
 Please revise.
- 12 Laboratory Data Slicets were not provided for groundwater samples collected 3/29/99 and for groundwater samples collected 2/10/98 and 10/27/99 from MW-2-95. Please submit.
- The Soil Boring Logs/Monitoring Well Construction Diagrams were not provided for MW-5, MW-6, and MW-7. Please submit. Note, a slug test was performed in MW-6.
- 14 A Site Plan Map was not provided. Please submit a site plan map, ensuring that the locations of all former USTs, current USTs, product times and dispensers are shown. Also, identify the location of the 1995 spill associated with the broken vinyl tube (see 4/4/95 letter from R. K. Nelson, Marlay Pump Company).

The department can not accept the Tier 2 report at this time based on the above deficiencies. You are required to complete the following

Within 90 calendar days submit a revised Fier 2 report. Note this completeness review does not subbess accuracy. Accuracy problems, if present in this report, may prevent its acceptance when this site is proposed for a no action required classification. Also be aware the outlined deficiencies in the Tier 2 report must be fully addressed in conjunction with a Tier 2 re-submittal. Incomplete Tier 1 Reports and Tier 2 Reports not submitted in the format required by the department will be rejected.

Attach a cover letter to the revised Tier 2 report. In the cover letter provide a brief description how each of the listed deficiencies has been addressed in the revised report. With each response provide a reference identifying where revisions are located in the revised report. List and number your responses in the same order as the deficiencies. If a deficiency can be completely addressed solety with a brief, concise statement in the cover letter, rather than by inclusion of a revised page or section in the report, you may do so.

If a letter is submitted instead of a Tier 2 revision, a new Tier 2 report cover page, signed by you and your Certified Groundwater Professional, must be included with the letter.

If you are unable to meet the above schedule, notify the department in writing as soon as possible. Provide a detailed reason for the delay and a firm date by which the report will be submitted.

Annual monitoring intended to measure changes in contaminant levels and contaminant migration is required during the third calendar quarter entil the corrective action for the site is implemented. DNR rules require you to retain a certified groundwater professional to conduct all site monitoring activities. A Site Monitoring Report (SMR) must be submitted to the DNR within 30 days after each sampling event. The next SMR must be submitted by October 30, 2002.

In all correspondence regarding this project, please include the LUST number, which is indicated in the Subject heading of this letter. If you have questions or we may be of assistance, please contact me at 515-281-6704.

Verne Schunk

VERSE SCHRUNK

ENV.RONMENTAL SPECIALIST

UNDERGROUND STORAGE TANK SECTION

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cc: Field Office 6

GAB Business Services, Inc.

R. Jonathan Paetz, Dahl & Associates, Inc., 985 Lincoln Road, Suite 220, Bettendorf, IA 52722

Complete terms 1, 2, and 3. Also complete	
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Environmental Consultants, Contractors & Engineers

May 30, 2000

Mr. Verne Schrunk / lowa Department of Natural Resources Underground Storage Tank Section Wallace State Office building 906 East Grand Avenue Des Monres, lowa 30219-0034

RE: Tier 2 Report for the Mariey Pump, Davenport, Iowa.

DAHL Project No. 1695 1539

Registration No: 9217426

LUST No. 9LTB63

Registration No: 7910056

Dear Mr. Schrunk:

Dahl & Associates, Inc. (DAHL), on behalf of Marley Pump is working on the Tier 2 Site Cleanup Report (Tier 2) for the subject site. DAHL is writing a combined Tier 2 for the two LUST's tes. The Tier 2 will be completed and submitted to the IDNR by June 30, 2000.

DAHL is installing a boring near MW-2, where free product had been observed after the 9LTBn3 release. The two releases were within 50° and both utilize the same set of monitoring wells for plume definition.

If you have any questions regarding this submittal, please feel free to contact this office at (319) 355-9785. Thank you

Sincerely,

DAHL & ASSOCIATES INC.

Exercitantait

R Jonathan Paetz Project Director - Senior Scientist Iowa Groundwater Professional #1435 Kan Davidson

Marley Pump Company

FUP iss

ce: Neil Searcy, GAP Robins, Inc.

CN JUNE 2000

File Name

Seniters Initials

PEPARTMENT OF RATURAL RESOURCES

THOMAS J. VILSACH, GOVERNOR SALLY J. PEDERSON LT. GOVERNOR

LYLE W. ASELL, INTERIM DIRECTOR

May 25, 2000

Mr. Dan VariZaiden Marley Pump Company 500 East 59th Davenport, IA, 52807 CERTIFIED MAIL (FFTTED)

SUBJECT

Overdue Tier.) Report - Markey Pump Company at 500 East 59th in Davemport, Jowa Tank Registration No. 7910056 LUST

Dear Mr. VanZuiden

The lowa Department of Natural Resources was informed on April 7, 1992, of consumination at the above-referenced facility. The department requested under Chapter 135 8 of the lowa Administrative Code, through a certified letter dated June 22, 1999, a Tier 1 Report be prepared and submitted.

The report has not been received and is overdue. The department is requiring the report be submitted within ten days from receipt of this fetter. Failure to respond to this request may result in a recommendation that this project be reterred to our Compliance and Enforcement Bureau for further action. Referral may result in assessment of an administrative penalty.

Funding for the activities described above may be available to assist you. If you have questions concerning eligibility for funding, please contact GAB Robins at 515/276-8046 and ask for Neil Searcy at ext. 237 or Sandy Porter at ext. 240. Please be aware the funding assistance for these site evaluations expires June 30, 2000. It is very important you receive assurances from the certified groundwater professional you select that the site evaluation will be completed prior to June 30, 2000 (e.g., contract signed by the consultant specifying the date the recent will be submitted to DNR1.

In all correspondence regarding this project, include the LUST number, which is indicated in the Subject heading of this letter. If couphave questions please contact the undersigned by telephoning 515/281-8135.

Suncerely

INMESTON

SUPERVISÓR UNDERGROUND STORAGE TANK SECTION

Attachments Certified Groundwater Professional list

JRH/stf/81.TS84

cc Field Office 6
GAB Robins

रेपालक संदर्भ है। इस विकास	
Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired. Print your name and address on the revenue so that we can return the cast to you. Artson this card to the back of the meliosce, or on the front if space permits. "The light is the cast to the cast to the meliosce."	A Regulator Press Press County & Care of Schroe E. Byratin X. Sull Houses Assessment
MR DAVE VANZUIDEN	S. dightway additional differential from Island 17 Ct Vin. M YES, either Undersony auditropia histories Ct No.
1. Article Additioned to: MR DAVE VANZUIDEN BEARLEY PLOTP COMPANY 500 EAST 50 ¹⁰ DAVENPORT 1A 52807	D ROMO MODERATION



File Name _____

Senders Initials ___

DEPARTMENT OF NATURAL RESOURCES

THOMAS J. VILSACK TOVERNOR SALLY & TEDERSON LT. GOVERNOR

PAUL W. JOHNSON, DIRECTOR

June 21, 1999

CERTIFIED MAIL

CERTIFIED

Mr. Das VanZuiden Marley Pump Company S00 East 59th Davenport, IA, 52807

SUMBLET

Petroleum Contamination- Marley Pump Company at 500 East 59th Street in

Davenport, Iowa

Registration No. 7910056

LUST No. 8LTS84

Dear Mr. VanZuiden

The lowa Department of Natural Resources (DNR) previously accepted a low risk classification for the referenced site and required aimual monitoring be conducted. However, the DNR has adopted administrative rules which significantly changed the process in handling petroleum contaminated sites. The rules 4567----Chapter 13e) follow an approach called Risk-Based Corrective Action (RBCA) and require an evaluation of site data to determine the risk the contamination at the site poses to public health, safety and the environment. This is your opportunity to establish the target for obtaining a "No Action Required" classification for your site.

We request you retain a certified groundwater professional to conduct a RBCA evaluation of your site. A list of certified groundwater professionals is attached. The groundwater professional will submit either a Tier 1 Site Assessment Report or a Tier 2 Site Cleanup Report (Tier 2 SCR). In conducting the evaluation, the certified groundwater professional may use data from your previously submitted SCR or obtain current data by sampling the soil and groundwater. Please follow this activity schedule:

Within 30 calendar days after receipt of this letter, submit in writing the name of the certified groundwater professional you have retained for the RBCA evaluation project and your intent to follow the schedule contained in this letter. We strongly suggest selecting a certified groundwater professional who can commit to the schedule for report submittal.

Within 90 calendar days after receipt of this letter, submit the Tier 1 Report. Guidance for the report has been provided to certified groundwater professionals.

If you elect to prepare a Tier 2 SCR instead of a Tier 1 Report, the department must be notified in writing prior to the expiration of the Tier 1 Report submittal deadline. The Tier 2 SCR must be submitted within 180 calendar days after receipt of this letter. Your certified groundwater professional can assist you in determining whether a Tier 2 SCR is necessary. Contact the department (515/281-6019) if you want a copy of the guidance documents.

Upon receipt of the Tier I Report or the Tier 2 SCR, the department may either conduct a cursory review of the report for completeness, or conduct a more thorough review to determine whether the report is complete, accurate, and in compliance with the department's rules. A report is considered to be complete if at contains all the information and data required by the administrative rules and the department's

guidance. Incomplete Tire I Reports and Tire I Reports not submitted in the format required by the department will be rejected. The report is considered accurate if the information and data are reasonably reliable based first on the standards in the administrative rules and department guidance, and second, on generally accepted industry standards.

If the department does not send you a response within 60 days, the report will be considered accepted for the purposes of completeness. If the report proposes a no action required site classification, the 60-day review limitation does not apply. The department may conduct a thorough review of the report for completeness, accuracy and compliance with the department's rules to determine whether the data and information support the site classification.

SELE MONITORING

The new risk-based corrective action rules also require every site conduct at least annual interim monitoring until a no action required classification is approved by the department. The certified groundwaiter professional should scleet at least three wells to monitor, preferably during the third calendar quarter. The selected wells should include the source well(s) and monitoring wells between the source and significant receptors (such as water wells, plastic water lines, basements, etc.). A Site Monitoring Report (ShR) is to be submitted no later than 30 days after the end of the quarter in which the samples were collected. The next SMR is due by October 30, 1999.

FUNDING

I unding for the activities described above may be available to assist you. If you have questions concerning eligibility for funding, please contact GAB Robins at 515 / 276-8046, ask for Neil Searcy at ext. 237 or Sandy Porter at ext. 240. Please be aware the funding assistance for these site evaluations expires June 30, 2000. It is very important you receive assurances (e.g., contract signed by the consultant specifying the date the report will be submitted to DNR) from the certified groundwater professional you select that the site evaluation will be completed prior to June 30, 2000.

In all correspondence regarding this project, include the LUST number, which is indicated in the Subject heading of this letter. If you have questions or if we may be of assistance, please contact me by telephoning \$15.281-6704

Sincerely.

VERNE SCHRUNK

ENVIRONMENTAL SPECIALIST UNDERGROUND STORAGE TANK SECTION

Attachments: Certified Groundwater Professional List

VKS SLTS84jp

Field Office 6

ENOUR: Capping librar 1 and/or 2 for additional services. Courspoke librars 3, 4e, and 4b. Hely your marks and additious on the revenue of this fave up that and to you.	Was com return this	f also wish to a following servi stra lee):	
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MR DAN VANZUIDEN MARLEY PUMP COMPANY 500 EAST 59TH DAVENPORT IA 52807	40. Service Register Express Retuin Ra Total FO	Namber / 20/2 Typis ad Mesi codel for Merchan	A Continue Francis
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8-7584

CHRICKLIST POR THE SITE CLEANUP PROPER (SCR)

The following guidance document is used to evaluate Site Cleanup Reports submitted to the department for review. Additional comments are written, if necessary, in the margins referencing the area of concern.

The following questions, devised from the SCR document, are to be answered based on the information presented in the SCR. Responses may fall into the following categories:

categories:	
	ion provided meets the qualifications so indicated or correct information.
N - No.	
1 - Information is	: inadequate
: - Information is	s inadequate s inaccurate s missing
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STATE CLEANING REPORT CHRONILLEY

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1.						
2.	UST Registration No.	¥	H	1	2	3
3.		X,	Ħ	1	2	3
4.	Site Address (complete)	Y	Ħ	1	2	3
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6.	Responsible Party Name	1	*	1	2	3
	Resp. Party - Address (complete)	·g)		1	2	3
7.	Submittal Date	y .		1	2	
8.	Site Risk Classification	Y	-	•	_	3
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200	andices Check-off Sheet					
	Appendices Check-Off Sheet be completed? Varify that all Appendices checked are in report.					
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Baw	the following been properly identified? (Verify thru UST		٠.			
A.		databa	Se/wr	i t ton	file)
₽,	Date petroleum release reported to IDNR	Y	N	1	. 2	3
c.	Site Owner Chroneless	Y	N	1	2	3
	Site Owner Chronology - all information must be provided with no chronological gaps (the listing should include all periods of time when petro products were used or sold at the site)					
	cue site;	Y	N	1	2	3
Þ.	Description of circumstances of the discovery of release					
8.	Description of initial actions taken to abate	¥	N	1	2	3
	petroleum release					
		¥	×	1	2	3

II. CHITCHE Site Conditions

H	as sufficient information been provided on the following?					
Ä	General Sescription of site geology	Ţ		1	_	_
В	 Description of all existing OST system(s) at site active and out of service. 		-	•	Ī	3
	are all USTH removed from the site.	y Y		1	2	3
¢.	Was a system tightness test (i.e., tank/line tightness test) required by the IDNR	Ī	Ī			
	If required: Using a copy of the latest tank/line tightness test, complete Table II-C	Y	. #			
•	Appendix 1 - "Tank Line Tightness Testing Results"					
	is a complete copy of tank/line rightness test, including all supporting data provided?	Y	×			
	Is the method used approved by the USERA and/or the IDER for the conditions and tanks located at the site? (se third party certification beam provided?	•				
		¥	H			
	Are the conclusions justified by data presented?	· •	N	1		
	Are explanations of testing anomalies provided?	Y	,,		3	3
	If corrective actions were initiated or repairs necessary, is a description of actions provided?		-	-	•	3
D.		Y	Ħ	1	2	3
۵.	Topographic Site Map (Appendix 2)					
	Is a <u>legible</u> top:graphical map, with contour interval less than ur equal to 10 feet, provided showing the site and surrounding axes?			· ·		
	•	¥	ાર્જ		10 Mg	
F.	Scaled Site Flam (Appendix 3)				استدال از	
	<pre>ls s scried sits plan provided showing the site and immediate surrounding area?</pre>					
	Does the diagram provided show the location of all existing and removed USTs, product lines, and dispensers, and pertinent site features, such as roads, buildings, wells, waterways, sinkholes, etc.?	¥	N	1	2	3

P.	Scaled Site Vicinity Map					
	Are the names and addresses of all adjacent owners and owners whose property is or is likely to be affected by the movement of contamination provided? (Manes provided must correspond to information on the "Scaled Site Vicinity Map")	¥	¥	1.	2	3
•	Appendix 4 - "II(F) - Scaled Site Vicinity Nap"					
	Is a completed scaled site map (1°+ 200 to 50° ft) provided showing general area features and locations of adjacent properties which are or may be affected by contamination movement?	¥	H	1	2	3
	Does the map provided show all pertinent site features, including locations of buildings, roads, waterways, sinkholes, etc.?	¥	Ħ	1	2	3
XXI	Soil Sempling Methods & Findings					
A.	Buring number and placement - Has a reasoned explanation been given to justify the number and placement of soil borings.	Y	N	1	2	3
	Does the rationale for borehole placement allow for sufficient information to be collected to determine the vertical and horizontal extent of contamination and the transition zone(s) between areas that are and are not contaminated.	Y	n	1	2	1
	Is the rationals justified based on engineering, geologic, or hydrogeologic principles.	¥	N	1	. 3	3
₽.	Soil Boring Logs (Appendix 5)					
	Note: Buringe completed after March 5, 1992 must be logged on DMP Form 542-1392 or equivalent					
	Is a separate soil boxing log provided for each boxehole placed?	y	ы	1	2	1
	Are the boring logs completed with the information as required on DNR form 542-1392?	¥	н	1	2	3
	Is at least one (1) water level observation recorded with time, date and water elevation (ASL) for each boring log?	Y	k	1	2	3

: .	Prevention of trose-contamination: Are the actions taken sufficient to prevent cross-contamination between boreholes during installation and sampling procedures?	¥	¥	1	2	3	
D.	Vapor Equipment: Has a list been provided itemizing various vapor equipment used (if eny), description of its use and an evaluation of the conclusious drawn from the vapor results and calibration						
	procedures?	Y	19	1	2	3	
	Calibration chart - Are daily calibration measurements noted for each vapor instrument used	Y	, M	1	2	3	
ቘ.	Soil pample collection: Has a description been provided of soil sample collection methods and a reason for its use in obtaining representative samples.	.	u	1	2	1	
		_		_	_	_	
	At a minimum, were soil examples collected at 5 root intervals or at points indicated by high vapor readings	¥	ĸ	1	2	ı	
₹.	Soil Costamination Plume Map(s) (Appendix 6)						
	Do the soil contamination plume map(s) depict the full extent of voduce some soils which exceed the IDNR corrective action limit of 100 ppm total organic hydrocarbone?	Y	×	1	2	3	
	Are the maps adequately labelled with each boring numbered and soil contamination concentration for each boring noted?	¥	Ħ	1	2	3	
	based on the location of soil borings and the boring logs provided, are the limits of contemination identified justified by scientific principles?	Y	Ħ	1	2	3	
	Have the boring(s) used to determine hydraulic conductivity been identified?	¥	14	1	2	3	
		٠		•	•	•	

IV. Groundester Sempling Mathods & Findings

A.	Boring number & placement: Is a reasoned explanation given to justify the number and placement of groundwater monitoring wells?	Y	н	1	2	3
	noes the rationale for monitoring well placement allow for sufficient information to be collected to determine the vertical and horisontal extent of contamination, site stratigraphy, and the tran- sition some between areas that are and are not					
	conteminated.	ĭ	×	: .	2	3
	Is the rationals justified based on engineering, geologic, or hydrogeologic principles.	¥	*	1	2	3
3.	Monitoring Well Countraction Diagrams (Appendix 7)					
	Note: Monitoring wells installed after March 5, 1992 must be logged/described using IDMN Form 562-1392.					
	Is there a separate monitoring well construction diagram completed for each well installed at the site and in the general area?	Y	¥	ı	3	3
	Do the monitoring Well construction diagrams provide sufficient information regarding the construction of each well (See Section IV-C)?	¥	n	1	3	3
	Are water level observations recorded that verify a stabilized level? Has the well been allowed to stabilize?	Y	ų	1	2	3
	Is the static water level indicated with the symbol " $\underline{\mathbf{Y}}$ "?	ŗ	Ħ	1	2	3
	Is the static water level within the acreened interval of the monitoring well?	Y	М	1	2	,
c.	Description of Permanent Nonitoring Well Construction: Are the following aspects of the well construction provided in a clear and concise description? (1) method of cleaning well components prior to installation (2) casing and screen material, diameter and length (3) screen slot size (4) how sections of casings and screens are connected (5) method used to install filter pack and seals, (6) actions taken to prevent cross-contamination of wells during construction and sampling (7) procedures to develop monitoring wells	Y		1	2	3
	1.1 Numbers of desarch mountains matte	•	74	1	4	3

١.	Temporery Memitering Wells: Hea a description or explanation been provided describing the type and use of temporary casing and screens in the boreholes				*	
	used as temporary walls?	¥	×	1	2	3
	Is an adequate explanation and justification					
	provided on the procedures used to develop the well					
	to ensure a representative groundwater sample?	¥		1	2	3
١.	Groundwater Sampling Methods: Nas an adequate explan-					
	ation and justification been provided for determining the adequacy of the groundwater sampling and well				,	
	purging methods?	Y	H	1	2	3
۲.	Groundwater Data for Contour Map Development: Is a table provided which indicates, at minimum,					
	the following information?					
	1. Well/Boring number					
	2. Date measured					
	3. Static Mater Level (ASL) - nearest 0.01 ft					
	 Water level correction for Free Product, if required 					
	5. Ground Surface Elevation - nearest 0.1 ft	¥	2	1	3	3
٠	If the water level was corrected due to presence					
	of free product, was a atatement provided					
	describing the correction method?	¥	M	1	2	3
	Ham a description of the benchmark used to survey					
	for groundwater surface elevations been provided?	Y	×	1	2	3
	Is the benchmark used tied in to a USGS or other					
	geodatic datum?	Y	M	7	2	3
C.	Groundwater Contour Map (Appendix 8)					
	Does the Groundwater Contour Map provide information					
	as to monitoring well locations, groundwater					
	elevation points, groundwater contour invervals,					
	and groundwater flow direction insted with an					
	arrow)?	¥	Ħ	1	2	3
	Are the wells used to determine hydraulic					
	conductivity identified on the map?	Y	Ħ	1	2	3
	If necessary, are separate groundwater contour					
	maps provided to describe groundwater movement					
	and flow direction in different aquifers?	Y	Ħ	1	2	3

B.	Hes a description and explanation been provided on:	- 1				
1.	the methodology and device used to determine static groundwater levels - identify instrument used.	¥	M	1	2	
2.	the accuracy of the method used to determine groundwater levels.	r	K	1	2	
3.	groundwater flows ard/or anomalous water levels.	Y	H	1	2	
4.	fluctuations in water levels, with special emphasis on those which may alter groundwater flow directions.	¥	W	2	2	
1.	Groundwater Contemination Flume Hupe (Appendix 9)					
	Do the groundwater contamination plume map(s) depict the full extent of free phase product and dissolved phase contamination exceeding the LER's groundwater corrective action limits and are the iso-compentrations of groundwater contaminants noted within the plume?	¥	И	2	2	
	If necessary, is a separate groundwater contaminant plume map provided for each contaminant which exceed's the IDNR's corrective action limits?	Y	Ħ	1	2	
	Is each data point adequately labelled as to MM 8 and contaminant concentration?	Y	н	1	2	
	If applicable, is a map provided which depicts the full extent of free product and depth of product?	Y	N	1	2	
	Based on the number and location of data points/ monitoring wells provided, are the diagramed limits of contamination justified?	Y	N			
	Has the 'transition some' between adequately					
	dafined?	¥	×	3	2	
Y.	Sampling Quality Control					
	Has a statement been provided that indicates that the QC/QA procedures used are at least as stringent as those of the IDNR's LUST QC/QA plan.	Y	ħ			

1.1	The state of the s	77.00	1.00	5 × 325	15. in 1. 4. al - 10	PERMI
37.	Processionic Cross Section, (Appendix 10)			3 "N.S.	100	
	Are the Hydrogaologic Cross-Sections or three- dimensional diagrams stratigraphically correct as interpreted from the soil boring logs?	¥		1	2	3
	Do the cross-section diagrams provide detail of the following:			-	•	,
	Identification of types and characteristics of the geologic materials present?	Y	H	1	2	3
	Identification of contact zones between different geological materials, noting areas of high permeability and/or fracture?	_				
	location of boreholes, noting depth of termination	T	М	1	2	3
	and zone of saturation?	Y	H	1	2	3
YII.	Bydraulic Conductivity					
A.	Has the hydraulic conductivity been determined?	Y	ĸ	1	2	3
	Has a statement been made identifying which boring(s) and/or wells were used to determine the hydraulic conductivity?	¥	_			
	Have the data and calculations used to detormine	I	×	1	2	3
	Aydraulic conductivity bean provided?	Y	×	1	2	3
B .	Has the method used to determine hydraulic conductivity been identified.	у			2	3
€.	If an equivalent method (other than the Bouwer-Rice method in saturated soils or the Gualph permeasurer in unsaturated soils) was used, was the accuracy and appropriateness evaluated?		_	•	•	,
Ð,	Has an explanation been provided on why the location/ number of data points used for determining hydraulic conductivity is representative of	Y	M	1	2	3
	at the site?	Y	N	1	2	2

YIII. Becomtor Survey (Appendix 11)

A.	Has a map been provided, with an appropriate scale to adequately show all surface water bodies within 1000 feet of the petroleum contaminated area?	r	¥			
	Has the potential impact to the surface water been adequately investigated?	¥	ĸ	1	2	?
	If water samples and/or soil samples have been collected, has a statement been provided on sample collection and analysis methods?	Y	ĸ	1	2	3
	Has a narrative susmary been provided to evaluate the potential for hydrogeological connections			•	-	
	between the contamination and the surface water?	Y	M	1	2	3
₽,	Has a map been provided, with an appropriate scale to adequately show all utility conduits within 200 feet of the petroleum contaminated area?	¥	¥			
	Has the potential impact to the conduits been adequately investigated?	Y	Ħ	. 1	2	3
	Ham a detailed statement of investigation procedures been provided, which should include identification of all coil and or vapor sample locations?	Y	м	1	2	,
	Has a marrative summary been provided on the investigations conducted to determine if the vapors are present in confined spaces and/or in occupied structures?	Y	ĸ	1	2	1
	Has a narrative summary been provided to evaluate the potential for hydrogeological connections between the contamination and the conducts?	Y	×	3.	2	;
	Has a tabulation of all conduits and confined spaces hean provided, which identify the type of conduit or confined space, conduit backfill material, alogs of conduit and trench, and relationship to groundwater					
	level?	Y	#	1	2	3
c.	Are the locations of all active, abandoned, and plugged groundwater wells within 1000' of the petroleum contaminated area provided? Has an on-site survey been conducted within a 100' radius of the site?	¥	יע	1	2	3
	have copies of available well logs and the names and addresses of well owners provided for identified wells within 1000 feet of the contaminated area?	-		_		-
	washe matrix 1000 lest of the contaminated area?	¥	M	1	2	3

ο.	Has a narrative summary been provided to svaluate any potential groundwater barriers (i.e foundations, structures, parking lots, roads, etc.) which may have an impact on the movement of contamination?	¥	×	1	2	1
	Has a explanation been provided on the significance	-	-	•	-	•
	the identified barriers as related to the					
	hydrogeologic conditions present at the site?	T	M	1	2	3
IX	Boalth & Safety Plan					
	Has a certification been presented which verifies					
	that the (m-Site Health & Safety plan conforms to applicable OSHA requirements?	¥	×			
L , ,	Tabulation of Amelytical Data					
A .	Soil Analytical Data Information: has the table					
	on page 15 been completed using the soil sample					
	analytical data obtained during this and all previous investigations for each soil boring or MM?	Y		1	2	3
		•	-	•	•	,
B .	Groundwater Analytical Data Information: has the table on page 15 been completed using the groundwater analytical data obtained during this and all previous investigations.					
	The list should be chronological and list each well					
	Bequentially	¥	H	1	2	3
c.	Do the tables provided and the laboratory data					
	sheets (* Appendix 12) agree?	A	ĸ	1	2	3
	Have copies of ALL analytical data sheets been provided?	Y	н	1	2	3
IJ.	Free Product					
А.	Has free product been identified at the site?	Y	M			
B.	If yes, is the date indicated when the "Free Product					
	Removal Report' was submitted to the department?	¥	H			
С.	is a narractive provided which discusses the status and effectiveness of the free product removal					
	System in relation to the hydrogeologic conditions at the site?				_	
	WE CAR BALC:	Y	H	ī	2	3

XII. Contamination Source

A.	Has the source of contamination at the site been identified?	¥	M	1	2	3
	Appendix 13 - Off-Site Contamination Source Support Data					
	Has sufficient evidence, including analytical data and maps showing potential off-sits sources and groundwater flow direction, been provided to justify the conclusion that the contamination at this site is due to an off-site source?	¥	Ж	1	2	3
KII	I. SITE PISK CLASSIFICATION					
det	stions for evaluating if an adequate investigation has been emine site risk classification. Justification WOST be proappendix 14.					
A.	JUSTIFICATION FOR RIGH RISK					
1.	Senseme in occupied structures:					
a .	File review: Are there documented reports of fumes or vapors in occupied structures in the immediate area?.	Y	м			
b.	If yes, has an adequate investigation taken place to determine if the TLV-TWA for benzens in occupied structures exceeds or is likely to exceed 10 ppm in an 8 hour period?	Y	×	1	3	3
c.	If yes, is the method of analysis and all supporting laboratory data provided?	¥	N	1	ž.	3
d.	Has an appropriate justification been provided to determine risk classification?	Y	N	1	2	3

Combustible Gases in contined spaces:

File review: Are there documented reports of fumes or vapors in structures, basements, severs, utility conduits or any other confined space in

If yes, has an adequate investigation taken place to determine if the concentration of combustible games exceeds or is likely to exceed 10% of the LEE?

the immediate area?

c.	If yes, is the method and instrument used for analysis identified?	¥	Ħ	1	2	3
đ.	Has an appropriate investigation been performed to evaluate the potential of combustible gases to collect in confined spaces in the petroleum contaminated area?	¥	Ħ	1	2	3
3.	Surface water criteria:					
a.	Pile review: Are there documented reports of surface water quality violations suspected to be from the petroleum contamination at this site?	Y	×			
È.	If yes, has an adequate investigation taken place to determine if the contamination at this site exceeds or is likely to exceed the water quality standards contained in Subrule 56761.1(455%) of the IAC?	Y	И	1	2	3
e.	Has an appropriate investigation been performed to evaluate the potential of contamination migration to exceed the water quality criteria standard: outlined in Subrule 56761,3(455B) of the IAC?	¥	м	1	2	3
•	PVC Drinking Water Line:			,		
•	File review: Havo there been any reports indicating that soil contamination may be in contact with a utility brench containing a PVC drinking water line in the area of petroleum contamination?	¥	×			
£.	Has an adequate investigation been conducted to determine the extent of soil contamination which exceeds the corrective action limit in the vicinity of the PTO line?	¥	æi	1	2	3
¢	Is the rationale for the response indicated (High risk or Bo; supported by maps and analytical data?	¥	39	1	2	3
5.	Otility transher:					
*	File review: Have there been any reports indicating that contamination which exceeds the corrective action limit, he contained in Subrule 567:-135.8(8) of the IRC, is in contact with a utility trench?	Y	ħ			
z.	has an adequate investigation been conducted to determine the extent of soil and/or groundwater contamination which exceeds the corrective action limit in the vicinity of the utility conduits?	¥	H	1	2	3
С	Is the rationale for the response indicated (high risk or No) supported by maps and analytical data?	¥	Ħ	1	2	3

PA	GB 14 .	1	REV.	7/15	93	
A .	Based on site or areal geology, is this contamination some located within an area of fractured carbonate bedrock or in an area of karst topography?	Y	,	1	2	3
9.	Marst topography or area of fractured limestone:					
€.	Is the rationale for the response indicated supported by maps and analytical data?	¥	N	1	2	3
d.	Is there aufficient evidence to justify the response indicated (i.e High Risk or No)?	Y	N	,	2	3
¢.	Is the groundwater aquifer a protected groundwater source or a groundwater source used as a public/private water source?	Y	M	1	2	,
b.	Has the seasonal high water table been identified?	¥	N	1	2	3
۹.	Mas soil contamination been identified at the site?	¥	71	1	2	3
8.	Soil contamination (above CAL) in contact with protected groundwater source or groundwater source used as a public or private water source:					
•.	If classified as High Risk, has evidence been provided to justify that the site be reclassified as Low Risk?	¥	×	1	2	3
d.	Does the rationale provided outline sufficient avidance to justify the response indicated?	Y	a	1	2	3
c.	Is the rationals for the response indicated supported by maps and analytical data?	¥		1	2	3
b.	Are there any active groundwater wells, regardless of use, located within 1000 feet of the area of contamination?	Y.	×	1	2	3
4.	Has soil contamination been identified at the site?	Y	N			
7,	Soil contemination (above CAL) within 1890 ft of an active well:					
c.	Is the rationals for the responce indicated (High rick or No) supported by Maps and Analytical data?.	¥	и	1	2	3
b.	If yes, has an adequate investigation taken place to determine if the contamination is causing or is likely to cause damage to the utility structure?	Y	n	1	2	3
- •	File review: Have there been any reports indicating that contamination is present at concentrations which is causing or is likely to cause physical damage to a utility conduit or structure?	Y	Ħ			
	parade to activity (virtually or activities):					

<u> </u>	·	_	. Wat 1		74.
	1.1	19	giri da	180	\$ 19A
b. If yes, has this site been classified as high risk?	¥	M	1	2	3 797
c. Has documentation been provided to indicate that this sate may be reclassified as Low Risk based on the factors outlined on page 17 of 20, Section A., ao. 3.	¥	Ħ	1	2	3
10. Private or public water supply:					
a Are there any public or private water supplies located within the vicinity of the petroleum contaminated area?	¥	N	1	2	3
b. If yes, has an adequate investigation taken place to determine if the contamination is affecting or may affect the water supply areas?	Y .	¥	1	2	3
c. Has a public or private water supply been or likely to be impacted by contamination to the extent that an MCL is exceeded, or in the absence of an MCL, and Action Limit is exceeded?	¥	И	1	2	3
11. Protected groundwater source:					
a. Has the groundwater at the site bean impacted by contamination to the degree that an MCL or action level has been exceeded?	¥	N	1	2	3
b. Has the groundwater been defined as a protected groundwater source?	¥	M	1	2	3
c If no to (b), has sufficient evidence, including analytical data (i.e., TDS), been provided to support conclusion;	¥	Ŋ	1	2	3
12 Man-made structures:					
a Are there any natural or man-made conduits located within 100 ft of the contaminated groundwater plums which could allow the vertical or horizontal migration of petroleum contamination to a protected groundwater source that is used as a water source?	Y	и	1	3	3
b If yes, has an adequate investigation taken place to determine if the contamination is migrating or is likely to migrate to the toward the protected groundwater source?	¥	ĸ	1	2	3
13 Public of private water source:					
a Has the groundwater been impacted by petroleum contamination?	¥	Ħ	i		
b is the contaminated groundwater plume within 1000 ft of an active public or private water source?	¥	H	1	2	3
c. If yex, has evidence been provided to justify that the site be reclassified as Low Risk?	¥	20	. 1	. 2	3
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14.	Material separating groundwater source from contemination:					
■.	As there a minimum of three meters (9.75 ft) of uncontaminated soil, free of discontinuities, with a hydraulic conductivity of less than or equal to 10. meters/day, between the contumination some and a protected groundwater source or a groundwater serving as a public or private water source?	¥	N	1	2	,
> .	If yes to (a), has sufficient evidence been provided to support the statement?	Y	Ж	3	2	3
e.	If classified an High Risk, has evidence been provided to justify that the site be reclassified as Low Risk?	Ą	И	1	2	3
B .	LOW RISK SITE CONDITIONS					
1.	Does the soil TOH concentration exceed 100 mg/Kg or does the groundwater contaminant concentration exceed the NCL or an Action Limit?	Y	,			
2.	If yes to 1, do High Risk conditions exist at the eite?	¥	Ħ	1	2	j
3.	Do High Risk conditions \$7, 9, 13, and/or 14 exist at the sice?	¥	Ħ			
4.	If yes to 3, has sufficient evidence been provided to support conclusions to reclassify as low risk?	¥	M	1	3	3
C.	No Action Required Site Conditions					
or : is (MCL, ris)	s the SCR show that soil TOH concentrations are equal to less than an MCL and that the groundwater contemination equal to or less than an MCL or in the absence of an are equal to or less than an action level and high to or low risk conditions do not exist and are not sly to occur?	Y			2	3
	(IGH or LOW Risk conditions exist at the site?	•		•	•	•
- '	The state of the s	¥	н	1	3	3
		• • - •				
XIY	Corrective Action Response					
A.	Righ Risk Site Corrective Action Recommendations					
1.	Have the following been identified for the petroleum cont	eminet	ed as	es:		
a .	Vadome some soil contamination?	¥	ж	1	2	3
ь.	If yes to la., has the approx, volume of contaminated soil been determined?	¥	N	1	2	3

c.	Dissolved phase petroleum product in the groundwater?	¥	Ħ	1	2	3
đ	If yes to Ic., has the approx. volume of contaminated groundwater been detormined?	Ŧ	H.	1	2	3
• .	Free phase petroleum product present?	Y		1	2	3
f.	If yes to le., has the approx. volume of free product been determined?	¥	Ħ	1	2	3
ī.	Have at least two (2) applicable treatment technologies been proposed?	¥ .	M	1	2	3
	Appendix 15 - "XIV (A3) - Treatment Technology Evaluation"					
4	For each applicable treatment technology (minimum 2), has a of the following been identified and/or evaluated? 11 Identification of treatment technology 12 treatment method effectiveness 13 reliability 14 site characteristics 15 environmental, public health, and safety benefits and/or disadvantajes 16 costs Appendix 16 - 'XIV (A4) - Best Available Technology (BAT)' Has the BAT been identified? Has a in-depth evaluation, detailed justification, and explanation for selection of the treatment been provided?	Y Y	M M M	1 1	2 2	3 3
B .	Low Risk Site Corrective Action Recommendations					
1	Have the following been identified for the petroleum contact	inat	ed ar	104 :		
	Vaduse zone soil contamination?	Y	H	1	2	3
ħ.	If yes to la., has the approx. volume of contaminated soil been determined?	Y	¥	1	2	;
¢	Fissolved phase petroleum product in the groundwatex?	Y	M	1	2	3
đ	If yes to it., has the approx, volume of contaminated groundwater been determined?	Y	N	1	2	3
ė.	Free phase petroleum product present?	Y	Ħ	1	2	3
f	<pre>if yes to le., has the approx. volume of free product been determined?</pre>	¥	Ħ	1	а	3

BAN IM ANA

¥	н	i	2	
Y	M	1	2	3
				•
Y	×	1	2	3
¥	u			
•				
	Y	у м	д й ¹	Y M 1 2

Additional Comments:

IOWA DEPARTMENT OF NATURAL RESOURCES

LEAKING UNDERGROUND STORAGE TANK

SITE CLEANUP REPORT (SCR)

lows Department of Natural Resources

Underground Storage Tank Section Walane State Office Building 900 East Grand Avenue Des Moires, IA 50319-0034 515/281-8893

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IDNR SITE CLEANUP REPORT INSTRUCTIONS AND GENERAL INFORMATION

SITE INVESTIGATION BUDGET APPROVALS

UST owners and operators eligible to receive state funds to cover sits investigation expenses must submit the SCR proparation budget to the lowa Underground Storage Tank Financial Responsibility Program and the IDNR prior to intilating work at the site. Failure to receive budget approval from the lowa Underground Storage Tank Financial Responsibility Program prior to starting work at the site may result in a loss of state benefit eligibility.

GENERAL INSTRUCTIONS

This document provides guidance for preparing a Site Cleanup Report (SCR). The SCR consists of the results of the site assessment, risk classification (i.e., high, low or no risk) with supporting documentation and a recommended corrective action response. The corrective action response discusses cleanup o stone and selection of the most feasible cleanup methodology for high risk sites, the monitoring regimen for low risk sites or recommends no action for no risk sites.

To the extent practicable, during the preparation of the SCR, use generally available hydrological, geological, topographical, and geographical information in an attempt to minimize sits specific testing. Ensure all maps are legible and have a north arrow, scale and legend, the possible, maps should either be prepared on 8 % x 11 inch paper or reduced to that size with a single fold. In many instances, an area is provided in the SCR to record a response. Please limit the response to the area provided.

The SCR submittal must be accompanied by the appendices listed in the Appendices Check-Off Sheet. The appendices consist of analysical data, boring logs, tables, etc. Title and number each appendix as directed. Attach the appendices in the same order as listed on the Appendices Check-Off Sheet. Additional reports containing pertinent data not required by the SCR may be submitted. However, please ensure the SCR contains all the information requested.

Send one copy of the completed SCR and appendices to the lower Department of Natural Resources, Lust Coordinator, Walface Building, Des Moines, IA 50319-0034 and, if the state UST Fund is being utilized, one copy of the completed SCR and appendices to GAB Business Services, Inc., POB 3037, Des Moines, IA 50322.

A response must be provided for all questions unless directed otherwise in the instructions. Incomplete SCRs and SCRs not submitted in the format required by this document and submite 567-135.8 (455B) at the lows Administrative Corin will be rejected. Reports must be signed by the responsible party and a registered groundwater professional. It is the responsibility of the tank owner or operator to ensure the groundwater professional prepares a report appropriate for the conditions of the site.

Copies of administrative rules may be obtained from ICNR Records Section by calling 515/242-5819.

LABORATORY METHODS

lows Method OA-1 must be used by laboratories for the analysis of soil and water for highly volatile petroleum compounds (i.e., gasoline, benzene, toluene, sylene). Iowa Method OA-2 must be used for the analysis of soil and water for low- or semi-volatile petroleum hydrocarbon contamination (i.e., all prides of diesel fuel, fuel oil, kerosene, oil, and mineral spirits). Copies of these methods are available from IONN by calking 515/281-6-10. Alternative analytical method must be quantitatively equivalent to

OA-1 and/or OA-2. Groundwater samples must be analyzed for benzene, ethy/benzene, tolusne and xviene. Soil samples must be analyzed for total organic hydrocarbons reported as all substances which have been stored in the tank(s) for the substance released, once that is

FREE PRODUCT REPORTING

Notify the department by calling 515/281-6010 within 24 hours if free shase product is encountered during on-site work. Free product removal must be conducted in accordance with 567-135.7(5)(4558) and reported to the DNR on the strached DNR Form Numbers 542-1424 and 542-1425.

ELEVATION MEASUREMENTS

All elevations required to be reported as feet above sea level (ASL) must be referenced to a National Geodetic Datum permanent or monumentatic control point benchmark. All ASL musaturements taken at the site must be determined by a differential survey to the benchmark. Variations from this requirement must receive prior approval from IDMR.

PRECISION OF MEASUREMENTS

Yop of casing elevations must be measured to the nearwat 0.01 foot. Ground elevations must be measured to the nearest 0.1 foot. Static water levels must be measured to the nearest 0.01 foot. An adequate number of water levels must be measured in each well to determine the static water level.

HYDRAULIC CONDUCTIVITY MEASUREMENTS

Hydraulic conductivity is the rate of water movement through the soil and is measured in metars per day inrid; as determined by the following methods. For a seturated soil, the Bouwer-Rice method or its oquivalent must be used. For unsaturated soil, use a Guelph permainsor or an equivalent in anu constant-head permainster in a boring finished above the water table. If an in situ method cannot be used for unsaturated soil because of depth or if the soil is homogenous and lacks flow-conducting channels, fractures, cavities, etc., laboratory measurements of hydraulic conducturity are acceptable. Conditions requiring taboratory measurements must be clearly docume-ted.

If laboratory methods are used, collect undisturbed and samples using a thin-walled tube sampler in accordance with the American Society of Testing and Maserials (ASTM) Standard D1587. Semples shall be clearly marked, preserved and transported to the laboratory. The laboratory shall measure hydrautic conductivity using a constant-head permeameter in accordance with ASTM Standard D2434 or a falling-head permeameter in accordance with accepted methodology.

PROTECTED GROUNDWATER SOURCE

A protected groundwater source is a saturated bed, formation or group of formations which has a hydraulic conductivity of at least 0.44 maters per day (m/d) and a total dissolved solids of less than 2.500 milliorams per liter (mult).

CLASSIFICATION OF SOILS

Use the Unified Soil Classification System (U.S. Department of Interior, Bureau of Rectamation) to describe soils and subsurface materials in boring logs, hydrogeological cross sections, alternaments, etc.

QUALITY CONTROL/QUALITY ASSURANCE PROCEDURES

The quality control/quality assurance (QC/QA) procedures used during the site investigation must be at least as stringent as those contained in IDNR's Lasting Underground Storage Tank Quality Assurance Plan. Copies of IDNR's Leating Underground Storage Tank Quality Assurance Plan may be obtained by calling 515/281-6010. The groundwater professional that supervised the

investigation must be able to provide IDNR with copies of the QC/QA plan designed for the sits, field notes and chain custody forms on request.

MONITORING WELL DESIGN SUGGESTIONS

The diagram below illustrates the suggested monitoring well construction design. Site specific conditions may result in variations in well design and construction. The upper portion of the borahole must be sealed to prevent infiliration from the surface. Wells must be fitted with a lockable, above-pround protective device and clearly labeled. Flush-mounted wells should be constructed only when necessary. Monitoring well acreens must be factory-fabricated. The screens must be long enough to accommodate seasonal groundwater level fluctuations. At a minimum, well acreens must extend fine feet above and below the static water level. Well construction details must be illustrated on the Soil Boring and Monitoring Well Construction Diagram (DNR Form 542-1392). Assure well construction features are lebeled and that the illustration accurately represents all dimensions.

PLUGGING ABANDONED WELLS AND BORINGS

All abandoned wells and borings that access groundwater must be plugged according to Chapter 567-39. Contact the IDNR Water Supply Section (515/242-6128) for additional information.

concerning this requirement. DNR Form 542-1226 must be completed for all plugged wells and boreholes.

SITE RISK CLASSIFICATION CRITERIA

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Sites must be classified as either high risk, low risk or no action required. The risk assessment and classification shall be based on the actual or potential threat to public health and safety and the environment and shall take into account relevant factors, including the presence of petroleum contamination in soils, groundwater, and surface waters, site geology and the effect conduits, barriers and separation distances have on the contamination. The site classification determination must be based on information obtained during the arte assessment investigation.

At a minimum, the following factors must be considered during the classification process when evaluating the presence of contamination in soils:

- Depth of existing contamination in relation to the ground surface.
- The separation distance between the contamination zone and groundwater.
- 3) The form, structure and variability of soils in the contamination zone.

At a minimum, the following factors must be considered, during the classification process, when evaluating for the presence of contamination in groundwater:

- The depth of existing contamination in relation to the ground surface.
- Depth of existing contamination in relation to the groundwater level.
- 3) Groundwater flow direction.
- 4) Groundwater flow direction relationship to the contamination zone.
- 5) Hydraulic and chemical properties of the aquifer or saturated pose.
- Groundwater uses and the relationship between the contaminated groundwater zone and descer apprecia.

At a minimum, the following factors must be considered during the classification process when evaluating the affects of conduits, barriers and distances on the contamination found in soils, groundwater and surface waters:

- Tive effect of the contamination on such conduits as wells, utility lines, tile lines and drainage systems.
- 2) The effect conduits have on contaminant transport.
- 3) Whether a well is active or shandoned
- 4) What function the utility conduit serves.
- 5) Existence of barriers (i.e., buildings, structures, government, natural, etc.).
- 6) The distance which separates the contamination found in soils, groundwater and surface waters from the conduits and barriers.
- Hydraulic conductivity of the contaminated and surrounding soils.

SOIL BORING LOG AND MONITORING WELL CONSTRUCTION DIAGRAM

Boring∕\	Vell 3	Facility Name			Facility Address		
Boring £	Depth rea	X Diame:	Of (inches)		Drilling N	Method	
Well Co Registra	ntractor Ition #				Logged	by	
Date an Time St	-	Date and Time En		Ground Elevatio	Surface n (ASL)		LUST Number
Depth in Fest	Well Core	Paction 1	Blow Cours 1 springs	Sam.	yaa Tygop*	PIO/PIO Reading	Stat Paradiana, Sali, Color and ChinoShaubra, Discoveración Sectiones, and

- 55 fapir special HS (hollow stam auger)

OBSERVATIONS	Date.			
WATER LEVELS	Level;			
Static Water Lavet Symbol v	Time:			

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FREE PRODUCT RECOVERY INFORMATION

aronologica	ally with the oldest da	ita first. The results	volumes removed fro for all events must be sheet for each reco-	e provided. Give a	
VELL NUMBER	DATE SAMPLED	STATIC GROUNDWATER LEVEL (ASL) 0.1'	PRODUCT THICKNESS 0.1'	VOLUME OF PRODUCT REMOVED (gallons)	VOLUME OF GROUNDWATER REMOVED (gallions)
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FREE PRODUCT RECOVERY TOTALS

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IOWA DEPARTMENT OF NATURAL RESOURCES

*** IMPORTANT: READ ALL INSTRUCTIONS BEFORE COMPLETING ***

Leaking Underground Storage Tank Site Cleanup Report (SCR)

	SITE IDENT	TRICATION	
UST No. 1987901	UST Registra	rtion No. 797	0056
Site Name: THE MARLEY	Y PUMP COMPANY		
Site Address: 500 EAST SOT	K STREET		
City DAVENFORT	·	 _	
!	RESPONSIBLE PART	TY IDENTIF	CATION
Name: THE MARLEY PUMP CON	MANY		
Street: 500 EAST 59TH ST	REET		
		State: IA	Zio Code: 52808
City DAVENPOR! Submittel Date: E/	HIGN (circle one) HI		LOW RISK) NO RISK
Submittel Date: 6/. SITE RISK CLASSIFICAT The below named certify integurements of Chapter 5	STATEMENT OF hat the document, appendic 67:135(456b) of the lowe	GH RUSK CERTIFICA tes and ettacking	LOW RISK NO RISK TION ents satisfy the Site Cleanup Repo
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Submittel Date: É/. SITE RISK CLASSIFICAT The below named certify to requirements of Chapter 5 federal and local requirements. The control of the control	STATEMENT OF hat this document, appendic 67-135(455b) of the lower note. Water Professional ## j i OC, text Professional	GH RUSK (I CERTIFICA' es and strachm Administrative Front Name Sign	TION ants satisfy the Site Cleanup Reported and all other applicable state A Responsible Perry A Language Reported Anty Data:

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APPENDICES CHECK-OFF SHEET

Chack the box to indicate the appendix is attached. Attach the appendices to the end of the SCR in the order listed.

- Appendix 1 "III(C) Tank & Line Tightness Yesting Results"

 Copies of all results, supporting field data, and the third party evaluation of the leak detection system. Explain the cause of testing anomalies and discuss any corrective action or repairs made to the system. Label as III(C) Tank & Line Tightness Testing Results.
- Appendix 2 "IHO) Topographicat Site Map"

 Topographic map of the Site and surrounding area. Label as (IIO) Topographical Site Map.
- Appendix 3 "HE) Scaled Site Plan"

 Map showing the site and immediate surrounding area. Label as II(E) Scaled Site Plan.
- Appendix 4 "If(F) Scaled She Vicinity Map"

 Map showing the site in relation to general area features and the locations of properties adjacent to the site affected by the petroleum contamination or with potential to be affected as a result of contamination movement. Label as II(F) Scaled Site Vicinity Map.
- Appendix 6 "III(8) DNR FORM 542-1392, Soil Boring Logs"

 Completed DNR FORM 542-1392 for each soil boring at the site. Label as III(8) Soil Boring Log.
- Appendix 6 "IRI(H) Soil Contamination Plume Map"

 Soil contamination plume map depicting the full extent of vedose zone soils exceeding the soil contamination corrective action levels. Label as RI(H) Soil Contamination Plume Map.
- Appendix 7 "IVIB" DNR FORM 542-1392, Monitoring Well Construction Diagram"

 Completed DNR FORM 542-1392 for each monitoring well at the site. Label as IV(B)
 Monitoring Well Construction Diagram.
- Appendix 3 "IV(G) Groundwater Contour Map"

 Groundwater contour map based on work done at the site. Label as IV(G) Groundwater
 Contour Map.
- Appendix 9 "IV(I) Groundwater Contamination Plume Maps
 Groundwater contamination plume maps depicting the full extent of free phase product
 and dissolved phase contamination exceeding the groundwater corrective action levels
 under 135.7(9) and the levels of groundwater contamination within the plume. Label as
 IV(II) Groundwater Contamination Plume Map.
- Appendix 10 "VI Hydrogeological Cross-Section Diagram"

 Stratigraphically correlated hydrogeologic cross-section or three- dimensional diagram which adequately defines the spatial relationships of subsurface materials at the site. Label as VI Hydrogeological Cross-Section Diagram.

Appendix 11 "VIII - Receptor Survey Map" Site area map with the results of the following receptor surveys illustrated:
Surface Water Body Survey. Location of surface water bodies (i.e., lakes, ponds, rivers, streams, etc.) within 1,000 feet of the petroleum contamination and evaluation of the potential for there to be a hydrogeological connection between the contamination and surface water.
2) Conduit Survey. Excation of utility and natural conduits and confined spaces within 200 feet of the petroleum contamination and the results of investigations to determine the potential for the conduits to act as a pathway for vapors and product.
 Groundwater Well Survey. Location of active, abandoned and plugged groundwater wells within 1,000 feet of the peuroleum release.
41 Groundwater Berners Survey. Locations of barriers and an explanation of their significance to contamination movement.
Label as VIII - Receptor Survey . Title survey nerratives with the headings above.
Appendix 12 "X - Laboratory Data Sheets" Copies of Isboratory data sheets. Label as X - Laboratory Data Sheets.
Appendix 13 "XR(B) - Off-Site Contemination Source Support Deta" Data to support alegations of off-site contemination sources impacting the site. Label as XII(B) - Off-site Contemination Source Support Data.
Appendix 14 'XIII - Site Risk Classification Justification" Justification of risk classification Label as XIII - Site Risk Classification Justification.
Appendix 15 "XIV(A3) - Treatment Technology Evaluation" (High Risk Sites Only) Evaluation of treatment technologies. Label as XIV(A3) - Treatment Technology Evaluation.
Appendix 16 "XIV(A4) - Best Available Technology (BAT)" [High Risk Sites Only) Identification of the best available treatment technology. Label as XIV(A4) - Best Available Technology (BAT).
Appendix 17 "XIV(82) - Best Management Practice" (Low Rink Sites Only) Detailed best management practices plan: Label as XV(82) - Best Management Practice.
Appendix 18 "XIV(R3) - Monitoring Plan" (Low Risk Sites Only) Monitoring plan that will ensure any significant increase in contamination concentration or movement is detected. Label as XIV(R3) - Monitoring Plan.
Appendix A - Supplemental Information for I.C Site Owner Chronology Appendix 8 - Supplemental Information for I.D Describe the circumstances of the discovery of the release.
"Appendix C - Supplemental Information for II.B - Description of Existing UST System "Appendix D - Supplemental Information for Hydraulic Conductivity

The second secon

*** IMPORTANT: READ ALL INSTRUCTIONS BEFORE COMPLETING ***

ICONFINE YOUR ANSWERS TO THE SPACE PROVIDED UNLESS OTHERWISE NOTED)

. Site History

A. Date the	petroleum release	was discovered:	03/18/92

B. Date the petroloum release was reported to DNR; 04/03/91

C. Site Owner Chronology

ITHIS PAGE MAY BE PHOTOCOPIED FOR ADDITIONAL SITE HISTORY)

Provide a thyonological exemplery of past and present site and tank owners and operational history. Begin with the present and work backwards. Include of periods of time petroleum products have been stored, used or sold on one. List the current mailing addresses of all playous twiners and tank operators. Let written contracts in agreements between land owners, real estate owners and tank operators. In the SITE ACTIVITY row, list number, expecity, and contents of past and present turks, previous releases and tank plosures.

DATE	2/8/69 - Present	Until 2/9/99
LAND DWNER NAME AND ADDRESS	The Meries Fump Company 500 E. Sith Steet Deventors, IA. 528C8	Relie Wosterfreid and John H. Westerfreid, John Wosterfreid, John Wosterfreid, Jr., Sasphen J. Westerfreid, and Paggy Westerfreid.
REAL ESTATE GWNER NAME & ADDRESS	Sema	Same
DPERATOR WAME	Same	
CONTRACT AGREEMENTS	See attached appendix for tirle documents and warranty deed.	See emached appendix (c) title documents and warranty dead.
SITE ACTIVITIES	One 500-gellon menufactured sties UST was unstalled on 3/19/74 by the Merley Pump Company. The 1/37 was used to store gasokine for the use and sole purpose of teeting gesokine pump. Till area, product times, and dependent administration of the UST system. The UST was seen to the UST system. The UST was excepted to a solve feet in persualization. 3/19/74, to 10/1-1983, During the tank's active left, the plaintening inon specified leaked size were researed on 3/13/73. During the area paried 8/37 through 11/37, in unstanders amount of fluid (ges-bine section wester) was removed for the UST was sectioned in place. A meta get in the uST was deared over the UST, was removed in 6/38. Sand and four inches of concrete were set in place of the formal gaste.	

D. Describe the circumstances of the discovery of the release:

The Northy Punis Company planned to expand their pump results floolines. The new feeling would include three USTs. Prior to Installing mid continuiting the results flooline, no environmental assessment needed to be conducted. The Markey Pump Company contracted Sensor Environmental Sensors, not. to conduct a substitution investigation. On 3718782, Sensor difficilled are boreholds, 64-1, near the coultiversal course of the testing floolity. The date from the investigation indicated, the presence of STEX constituents in water only; Spe attached appearant for Synther information.

Soil, Benziene - CO 5 ugrg Water, Benzene - CO 5 ugrg Soil, Ethylbenzene - CO.5 ugrg Water, Ethylbenzene - CO 25 mg/l Water, Tokuene - CO 25 mg/l Water, Tokuene - CO 25 mg/l Water, Tokuene - CO 25 mg/l Soil, TPH - CO 10 ugrg Water, Tokuene - CO 25 ng/l Water, Tylene - CO 25 ng/l

E. Describe the initial actions taken to about the petroleum release: The Mark Pump Company contracted Metcelf & Bedy, too, to conduct a invited materiage investigate the Interest and serting extent of contemporaries in any.

H. Current Site Conditions

(CONFINE YOUR ANSWER TO THE SPACE PROVIDED)

A. Provide a general description of the sits geology: The subserface set is light brown to brown with gray/orange morthing. The soil consists mainly of the USCS dissentiation Mt. (very soft safty clary carry set) to the terminate of each boring. The bold consists mainly of the USCS dissentiation Mt. (very soft safty clary set) to the terminate of each boring. The boring information mainly with some fine probables (global stift). The soft are former can be regionally characterized by this sequences of fines (windblown sitts and clays), send, and gravet. Also present is global till left behind by globles actively. The soft are deviced that principles of the clarked cut plants of the Control Lordands. The soft are deviced true Kansan and Robitsest and and outware het Poersons-age placeston. Believes the control Lordands. The soft are deviced true thanks that the underlying bedrook is the Control Lordands of Siturian age. The depth to bedrook is entoposate to be approximately 30 to 50 feet below greate in the soft of the approximately 30 to 50 feet below greate in the soft of the approximately 30 to 50 feet below greate in the soft of the spread of the soft of the spread and the soft of the spread of the

B. Description of the existing UST system: (THIS PAGE MAY BE PHOTOCOPIED IF MORE THAN 5 TANKS EXIST AT THIS SITE.)

Tank Number		Ţ,	,			
Capacity (Gallona)	500	560	560	580		
Product Stored	Gasolina	Unleaded	Unleaded	Unicaded/ Methanol		
Construction Material	Stepl	S 1094	Steel	Steel		
OPERATIONAL STATUS	CHEC	K DHE BOX O	NLY FOR EACH	TANK		
Compile Preduct	11	(×)	[x]	fxi	1)	ii.
Contains NC product and is out of use	isi	- 11	11	U	1.1	ļ ļ
C. Tank and line tightness rests required by DNR (yes or no)	No	Pia	No	No		!
Tenic Leak Riste (g/h)	NA					
Line Link Rate (g/h)	NA.					

>> Attach Appendix "ItiCl - Tank and Line Tightness Tosting Results"

If tanks or lines were tightness tested, actech copies of all results, supporting field data and the third party evaluation of the just detection system. Explain the cause of testing mornalism and discuss any corrective solving or require made to the system.

>> D. Attach Appendix "il(D) - Topographical Site Map"

Provide a topographical map of the site and surrounding trial developed from work done at the arts, city authors evaluate or USGS thaps. Lagitic contour elevation differentials no greater than ten less must be previded. Two foot contour intervals are preferred.

>> E. Attach Appendix "IHE) - Scaled Site Plan"

Frends a scaled map (scale 1 inch = 20 to 50 feet) of the site and the immediate surtounding area. It must show the following, but is not implied to.

- Location and content of existing and terrained USTs, product lines and disparisons.
- 2) Permant site feetures It.e., buildings, roads, wells, waterways, sinkholes, stulk.

>> F. Attach Appendix "H(F) - Scaled Sits Vicinity Map"

Provide a scaled receive 1 inch + 200 to 500 feets worstly map showing the lets in relation to surrounding general features. It <u>must show</u> the following, but is not breaked to:

- Percent general begards in a . buildings, roads, waterways, sincholes, etc.).
- 21 Location of properties educated to the site affected or potentially affected by the contamination.

List palp is the names of owners of property affected or potentially affected by the contamenation. Ensure the names correspond to the data provided on appendix "H(F) Scaled Site Vicinity Map."

Property Owner Name	Property Address	Owner Mailing Address
1) Hamilton Tuchrical Institute	1013 E S3rd Street Davempor. 9 52806	People contacted at this faility did not submit information after several attempts to contact them.
21 A 1 Rental	59th and Brady Deveroor IA 52808	People of A-1 did not submit this information after several attempts to contact them.
3) To Theres	328 E. 59th Street Devemport, IA 52809	People at Terminix did not submit this information ofter several attempts to contact them.
4) Wilege Inn Restaurent	5925 N. Brady Street Davemport, IA 52806	Papple at Village Inn Restaurant did not submit this information after several attempts to contact them.
\$1 Mater 6	5111 N Brady Street Davemport, (A 52808	Propie at Motel 8 did not submit this information after several ettempts to content them.
6) Goodwin and Brehme	503 E. 59th Street Devenport, JA 52807	Out of Business. Therefore, the owners could not be reached.
7) U. S Ceble	Out of Suprince. Address net lated in telephone book nor with it-a telephone information.	Out of Business, Therefore, the owner could not be reached.
2)		
9;		
101		
13)		

hear businesses lithized the City of Divenport as a water source

A. Boring number and placement.

4

Explain and justify the retinate used to determine the number and placement of add beings. Factors that affected be taken into consideration when developing the takengts include also strategably, made conductivity, madelity of contaminates and duretion of the release. The number and decomment of the primary madelity of contamination of the places.

) Monominature of the <u>largest and various arters</u> of and contentionation. 2) Accounts description of the strengtophy. 3) Identification of the transition zero between these areas that do and so not account of an an account account of the transition consults and include the convenients of several confidence in the transition consults of require the convenients of several confidence independent and several confidence in the first property of an account of the confidence of controls that the several confidence in the first property of a confidence in the first property of a confidence in the several confidence in the first property of the property

M&E's investigation was based upon an initial investigation conducted Service Environmental. Pleasment of boringtmonitoring walls were dependent upon restrictions of adupment size, undergound utables, unidange, anticipated graundwater flow direction, and preliminary environmental investigations performed. Building and utakty location restrictions landed the pleasment of soil boring/impropring walls.

M3.1: M&E chose the location of the well due to its close proximity to the abandoned in place UST. The purpose of this well was to verify the presence-obsence of petralsium hydrocarbon in the subsiniface adjacent to the UST; as getter water level data to gain a better understanding of the groundwater flow discribin. In determine, the vertical and learned another devaded contamination this data, used in occurrate with the other well data, will help determine the teteral extent of contamination(); to describe the arts stratigraphy; and performs study that to determine hydrodiac conductivity of grounds ate:

MMV2-M6EE located the well neer the encopains location of where Senese drilled 88-13. The purpose of this well were to verify the presence extension of personner in the survivor in the survivor. It gets have the vertex level state to get not determine the verboal and lateral extent of potential contamination (this data, used in only under on with the other well data, will had restricted the lateral extent of contamination), to Second the straignight part persons a leg test to determine subcretch typicallies conductivity of ground-waters to obtain a failbest test extension of the subcretch personality to obtain a failbest to extension of the subcretch typicallies on only the subcretch typicallies or only the subcretch typicallies of the subcretch typicalies of the subcretch typicallies of the subcretch typicallies of

NW-3 NAEC choice the location of this well to obtain water level gauging sate away from the influence of building structures; to provide background and or one groundwater quality data away from the influence (upgationt) of the abandoned in place UST; welly the prevence-absolute of providence of personal provident projection or the substruction. To getter water levels date to gain a letter understanding of the groundwater (New direction; or determine the warboal and leteral extent of potential contamination; to describe the site stratigraphy away from the influence of potential fill areas, and perform a alog text to determine hydraulic conductivity of groundwater. This upgradient bennipmonentaring water distances on of late contributions of contamination of the contribution of provident bennipmonentaring water distances or of late contributions occurs.

489.4: The mentoning well location was based on the focation of utilities. The purpose of this well is to collect groundwater elevation asta to better determine the groundwater elevation and to determine it perchann hydrocarbons have regrated downgradient of MW-2 and possibly off sits. The well was also placed to determine the <u>transition long</u> between areas that were determined to be impacted versus these that were not impacted.

Additionally, three soil borrings were cumplisted around and adjacent to the UST. These borrings were drilled to determine whether the netive soil was impacted by petroleum hydrocerbone.

> B. Attach Appendix "IM(B) - Sol Boring Logs"

Complete and attach a DMR FORM 542-1382 for each soil bonng at site.

C. Explain the actions taken to prevent cross-contamination between boreholes during installation and sameling.

All downlose component augers agint aprimis, str..., were decontaminated between each bus to the deviation of the properties with a setable brush and Access and their steam cleaned. So do debte not removed by the tingle pressure setage removed by actualising within 5-rough brush and Access and their steam cleaned. The steam cleaned vidical approximately 2,000 gas with temperatures of 200° F. Equipment such a stainness size knives were weeked with an Access Charles were weaked with an Access Charles and a destilled water nine. Each monitoring well was stainness and the high present extern position water wash. After cleaning, the wells were included presoned in present in the grand prevent and grands.

D. List the vapor equipment used. Describe its use and evaluate conclusions drawn from vapor results and calibration procedures. Equipment must be calibrated at the beginning and end of each day at the site, at a minimism. A MicroTep Photoconzenero Detector (PID) was used to conduct a field survey sail vapor headepage analysis and conduct a treathing zone health and sefety survey. A representative soil earrars for each 2.0/2.5 foot section was placed into a precisaned soil jar er a seniable plantic bag. Aluminum for was place lightly over the soil ac. The soil jar/realible blacks bag was allowed to vecerine for at least 10 runutes pro: to enalyzing the headspace with the PID to determine which and samples will be shipped to the laboratory for analysis. The PID was calibrated daily to 100 ppm reobutylens span gas. The headspace reading are relative concentrations of all volatily organic materials within the headspace which can be conzed with a 10.5 eV lamp. During the headspace analysis, it is secured that all ingigable material are from pretroleum hydrocarbone. During the October 1992 investigation, the soil vagor hasdapage results indicated that O porn hascapage was exists for all borings except MW-3. The 15-17.5 foot interval indicated a 141 ppm PID reading. This sample was collected for laboratory enailys a. The PID was not working properly se MW-1 for the intervel 2.5 - 10 feet. The PID was repullbrates and beaut weeking properly Thereof to During the October 1983 investigation, the PID rending were as follows: Baring S-1: 2-6 feet, 2.3 ppm; 4-6 feet, 5.2 ppm; 5-8 test, 2.9 ppm. Boning 8-2; 7-4 fest, 2.7 ppm; 4-6 fest, 3.7 ppm, 6-8 fest, 1.2 ppm-, Boring 8-3; 2-3.5 fest, 0 ppm; 2.3-6.6 fest, 0 ppm; 0.5-8 feet, O ppm* MW-4: 2.4 feet, O.2 ppm; 4.5-6.5 feet, O.2 ppm; 7-9 feet, O ppm; 3.5-11.6 feet, O ppm*, 12-14 feet, O ppm; 14.5-16 S. C ppm, 17-19 feet, 0 ppm. * Sample taken for laboratory englysis.

TABULATE DAILY CAUSTATION DATA IN THE CHART BELOW

CALIBRATION (PPM)			CAUBRATION (PPM)					
Standard	Stort	Dunng	Enci	Dete	Standard	Start	Dunng	End
100 ppm isobutlytene	100 ppm	100 ppm						
Same	100 ppm	100 ppm	<u> </u>			1		
Same	100 ppm	100 ppm						
Same	100 ppm	100 parn				ļ		-
 	 		-	 	+	┼	+	
			<u> </u>					1
				1	1			
	Standard 100 sprvi isobyttytene Same	Standard Start 100 ppm 100 ppm sobultytene Same 100 ppm Same 100 ppm	Standard Start Duning 100 ppm 100 ppm 100 ppm 100 ppm Same 100 ppm 100 ppm	Standard Start Dunng End	Standard Start Dunng End Dete	Standard Start Dunng End Dime Standard 100 ppm 100 ppm 100 ppm	Standard Start Dunng End Dete Standard Start	Standard Start Dunng End Dmte Standard Start Dunng

E. Describa soil sample collection methods and explain why the methods provide a representative semple. Split appoin and hollow stern augest producing a continuous core are acceptable cell sampling devices. As a minimum, soil samples must be collected at five foot intervals and when changes in the formation occur for soil observations, vapor screening and other indicated analyses. Soil semples were conducted by using 6.25 inch heliow stem auges. During the October 1982 investigator, a 5-foot long continuous sample harmst was pushed into the soil state. This method allowed for or instructly non-disturbed samples interested, for seed obstaining representative soil samples, the 8-foot light spoon was manually divided into two-2.5 foot section. *Each session was split* in helf and appropriate semples sections were collected into proposates and semple servicesable presents begin for PD analysis. During the Goodes 1982 investigation, 1.8 foot or 2.0 foot light spoon were notice and the spoon to the spool length by a hydrauch harmor. Sole were retrieved from the special special or otherwise some the October 1992 investigation. Because the october the pool stretch was unform throughout, each sample serve collected for chemical analysis if they displayed the highest PD reading or at the appearsh point of saturation. Additionally, soil samples were collected for PID entitytes every 2.0 to 2.5 feet, for each boorehole, the sample flancing interval did not accessed 5 feet.

>> F. Attach Appendix "M(H) - Soil Contemination Plume Mage"

Provide out concurrentive plante muse depicting the full extent of vedore zeria safet aspecting the soil contentination corrective action lavel under 135.7(9) and the terrate of nontermination within the plante. The extent of off-sits self-enterination must be investigated. Label boring locations with the petroleum hydrocerbon competitations used to determine the action of the plante. The map must control a sufficient number of data points to adequately justify the construction of plante control lines. Mantify borings used to determine hydrocerbon conductivity.

IV. Groundwater Sampling Methods and Findings

(CONFINE YOUR ANSWER TO THE SPACE PROVIDED)

A. Boring number and placement.

İ

Epithin and partity the retirents used to determine the reunion and placement of groundwater monitoring wolfs. Paying that should be taken into consistention when developing the returned include one oratifersphy, modify an embedding or ability of contamination of the release. The number and placement of walls must be sufficient to allow that. If Bottershoots of the <u>lateral and writines sating</u> of groundwater contamination. If the lateral and writines are sufficient to allow that. If Bottershoots or the <u>lateral and writines sating</u> groundwater contamination. If an advantage to the strongsphy. 30 Identification of the tenseless see between deep areas that do not due to a committee contamination than between these transfer of the sating of the satin

Consideration of borning percentant were given or that the most data can be obtained from one desirable soil borning/monitoring well location. Restrictions of borning/monitoring well precerved included usinty location, sequenced aims, and obtained to the monitoring well seems often to have developed providerate contained to have been asset to the deservation of the contained and servations of the servatio

See Section 81 - Self Sampling Methods and Findings, Page 8 or 20, for further details on self-borne/monitoring well placement.

>> 8. Attach Appendix "IV(B) - Monitoring Well Construction Diagram"

Complete and etrach a DNR FORM 542 1392 for each moreturing well constructed at the arts.

C. Explain permanent monstoring well construction.

If the following well-construction material or dimensions vary, indicate the varietiess on DNR FORM \$42-1392.

- 5) Whethod of clearante well components prior to installation. Steam cleaning, 2000 per with water temperatures of 200°F.
- 2) Casma and somes material. 2-inch diameter flush threaded PVC.
- 3) Seven elet eits 0.010-inch machine slot
- 4) How the excluse of epsings and screens are connected. Flush threaded joints.
- 51 Method used to leased filter yeals and seals. The metened was placed in the annualer space of the holiver stem sugar and monitoring will be yourned seal to be considered to the materials were placed into the enraster space, the holicon stem sugers were incommentally resed on the materials used fail out of the sugers and between the well and notice wall. The corners was placed into the annualer space by pouring the resiliers from a wheatherew (the sensitier space), when filted with sand and behomitin potents, were shallow except their power was more feasible them a treatment pages.
- 8) Actions taken to prevent cruse-contemination of walls during construction and sampling. The monitoring walls were pressure steam weeked prior to time important into this borehole. Clean later gloves were used to handle all downhole materials.
- 7) Municiping well development procedures. But with a pre-cleaned (Alconox and distilled water) 5-foot long PYC baller. Belled either 3.5 well volumes of water until pH, SC, and T⁰ are stable, or suntil dry. In this case, the wells were devisioped until dry.
- D. For samples collected from boreholes: (Temporary casing and screen are required prior to sample collection.)
- 1) Describe the type and upr _: temporary casing and ecoses.
- Explain and partity the nitrousky of wall development presedures to secure a representative agencie.

E. Explain and justify the adequacy of groundwater sampling and well purging methods.

Streamfwater sampling. Groundwater samples were unlessted form the four on-site mentioning insite with a disposable Taffon baser and new rope. The water form the monitoring well was placed immediately into 40 ms wate, placed on see (4°C), and shapping by express counter to Southwest Exbourdor of Ohlahomic.

F. Groundwater Data for Contour Map Development

ISURVEY DATA FROM ADJACENT SITES MAY BE UTILIZEDI

Wolf Borring Number	Date Meanured	Status Water Lavel (ASL) Ito D.C1 ft.i		Water Lavel Corrected due to Free Preduct * Product Depth		Ground Surface Elevation (ASL) (to 0.1 ft.)
MN-1	9/17/92	702.79	no]	inghas	215.60
MW-2	9/17/92	893.29	no		inches	718.68
MW-3	9/17/92	703 61	no	_	inches	715.23
WNV 1	10/1/92	704 65	rio.		inches	715.60
VM 2	10/1/82	701.\$1	no		inches	715.56
MM 3	10/1/32	70£ 5 3	ng]	-	715.23
MW-)	10/20/93	702.08	ne		inches	715.66
MW-2	10/20/83	698 97	na		inches	715.54
W-3	10/20/83	703 37	ng		inches	715.23
WH-4	10/20/93	698 35	no		Inches	715.11
NW-3	1/5/94	701 47	nc	-	inches	718.68
					mohae	
				1	Inches	
			}		Michee	

^{*} Describe below the correction method used to determine the static water level.

Static water water did not need to be corrected since there was no free product in the wells.

Describe the benchmark used to survey for groundwater surface elevations.

The benings transforming walls were resourceyed (ASC) using a maintain cover located nouthweast of the Marley Pump Company, on top of a pump house, and 700 feer each of Bridy Street on the month side of SEth Street. The benchmark was provided by the City Engineering Department of Devemport lews.

>> G. Attach Appendix "fV(G)- Groundwater Contour Map"

Provide a groundwater contour map based on work done or the site and the aspendit area. All walls at the site must be shown an the map, Walls constituted in different equation status and indicate the groundwater flow discretion with an arraw. Groundwater contours an area is disvertioned, in action of the map. Constitute must be consistent with absorbed exister lavel elevation. These instead of the map of

H. Describe and explain the following:

ľ

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- 11 Identify the methodology and device used to describine existic groundwater levels. An interphase probe (IP) is a device used to interest the level interest the level of both fee-phase hydrocarbons and water. The weter level measurement was taken on the north side of the tap of the IVC casing. The water level was recorded when an audible tone was evident. The IP is capable of measuring methot to written 0.31° accuracy.
- 21 Provide conferences that the methodology used wit provide the required busined accuracy. The MoraTip helps the user through a 12 step process to ensure that the PID is calibrated appropriately. The MoraTip is calibrated to display concentrations in units equivalent to pom. First, zero air which contains no inerable gases or vapors, is used to set the senativity. Isobutytens at 100 ppm in air is recommended and has used during all calibration procedures.
- 35 Groundwater flows and any anomalous water levels. Anomalous groundwater levels did not said during this sampling round,
- 4) Furthers in water levels with opened emphasis on these which may alter general groundwater gradient or floor diseases.

No change of ground-seter flow direction cocurred during this sampling period. Static water levels were taken on \$/16/82, 10/2/92, and 10/20/93. Monitoring well-MW-3 was remeasured on 1/6/94.

> > 1 Attach Appendix "FVR) - Groundwater Contempater Flump Mage"

Provide groundwates contempeator plans maps aspecting the full extent of free sheet credit and described phase contempeator assessing the groundwater corrective exten reveis under 135.7(9) and the levisle of groundwater contempeators within the planse. The extent of off sits groundwater contempeators must be investigated used data point with the contempeator contempeators used to determine the extent of the prome. The map must content a sufficient number of data points to edequately pastly the construction of plans contemps.

V. Sampling Quality Control

(CONFINE YOUR ANSWER TO THE SPACE PROVIDED)

Provide a statement that indicates the quality commol/quality assurance (QC/QA) procedures used during the site investigation were at least as stringent as those contained in IONR's Leating Underground Storage Tank Quality Assurance Plan.

The Marley Pump company's consultant followed IDNR a GA/GC procedures. M&E has prepared a CIAPP to conduct the Reid work. It speeds those requirements required by IDNR

VI. Hydrogeological Cross-Sections

> > Attach Appendix "VI - Hydropoological Cross-Section Disoram"

Develop, from the bornings that were required to identify the extent of centamination, otratigraphically correlated hydrogeologic prose-sections or three development disagrams which adequately offers the openin relationships of subsurface measurable at the sits. The cross-sections should flustrate the instruction in the consummentary price in the sections or degrams must enable the federating information.

- 31 Identification of types and characteristics of the geological metangle present
- 2) Identification of contact zones between afferent geological materials, neting zenes of high permissibility or freuture.
- 3) Detailed tronshols information including location, depth of termination and zone of estimation.

VII. Hydraulic Conductivity

ICONFINE YOUR ANSWER TO THE SPACE PROVIDED!

A. Determine and record here the hydrautic conductivity of subsurface materials at the alte. Identify borings and walls used to determine hydrautic conductivity. Include calculations and data used to obtain the values.

The Bower flice calculation for hydroxic conductivity was used. Baldown tests were performed in three meritoring water. PAW-1, MW-2, and MW-2. A hydroxic conductivity year was not conducted in MW-4 because of the uniform stratigraphy senses the site. Historiac conductivity years were performed to Missate the uniform magnitude scrose the site.

NRV 1 ii. = 0.00674 m/dev NRV-2 iik. = 0.00804 m/dev NRV-3 iiik. = 0.00883 m/dev

Calculations are provided in the attached Appendix.

B. Indicate the method used.

- C. If an equivalent method was used to determine conductivity, systems its accuracy.
- D. Explain why the Lucation/number of data points where hydraulic conductivity was determined adequately provides a representative indication of conductivity at the site.

THE RESERVE OF THE PROPERTY OF

Hydraulic conductivity taxts were performed in each well (except NWV-4) to allustrate this uniform magnitude across the site (all date was written one order of missinitude).

VM. Receptor Survey

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> > Attach Appendix "Vill - Receptor Survey Mac"

Provide a pite area may that identifies the Intering

A Berhard Winter Bardy Burkey: Lecation of surface water bodies (i.e., letter, ponde, mens, ettrems, sto.) enthin 1000 feet of the petrolistics overlammental one. Includes an evaluation of the justication of or hydrogeological connections between the confirmental surface water, butter to determine the configuration of the product or not to conduct or not to confirmental or determine the impact of confirmental or a surface water quality. Samples taken upstream of the release can had extended to determine the impact of confirmental or or surface water quality. Samples taken upstream of the release can had extended to both private fermine or confirmental or once or surface taken do extended the information in regarding sentenmental or concentration versus travel time. If surface nature sampling is conducted, provide a discussion of the complising methodology and qualities the adequacy of the company or product of the complision of the complication of the complision of the complision of the complision of the complision of the complication of the complication of the complision of the complision of the complication o

2. Combat: Summer: Lecision of uality is all power lines atorm and sentiary servers, till bries, stell, netural \$i.e., sinkheles, serves, etc.) companie and confines spaces is all power-case representations that has a summer of the emission of the emission of the servers of the emission of the emissio

The following are recommended when conducting a variet survey to an acassable white conduct

The vapor survey is required if there are reports of vapors or 2 the conduct has been expected by the contamination or if there is the potential for vapors based on the type of substance releases

- 1) Use an explorameter and photoconization detector IPIDI to take vapor readings. Start at the makeay closest to the site. Wash apeticism and downstream to determine if and interest to product or vapore are execute, and the interest of the impacted area. "Crann' each mentiony cover and take readings of oxygen, explorameter and PID. Repost measurements at mid-depth and instant level or bottom of the conduct.
- Zi Check air flow streetiese from the markery to determine if distance vegors is accurate.
- Collect water or sewage samples. Observe for sinesh and odors. If there is eder but ne product, consider using the PIO to obtain a head space analysis.
- Check all incoming conduct branches. If odors are describe, continue the investigation spetreum and describes are even if no product is present.
- (a) Check lift stations near the site

The following are recommended when conducting a contined apace survey:

- 1) Check confined spaces using an explosimeter and PtD, Regard rigines and addresses of building (spidents/aveners)
- 21 Check for vapors near waterments, sewer drains and near any foundation creaks.

Groundwater Survey.

Identifying active, inactive, abandoned and plugged groundwater wells within 1,000 feet of the petroleum contaminated area. Groundwater professores only need, responsive and information ready evaluable from public antibles (i.e., desirety health or zoning departments, IDMR, Water Supply Section (51.5/242-6126. Geological Survey Bureau (31.9/335-1575), etc., and water well evenues. An on-site survey will be necessary to identify all the wells in a 300 foot reduce the particular contaminated size. Aud; do in the appendix:

- 1) Copes of everable was toge
- 2) Norms and advess of each wat owner. Correlate with well number.
- 31 Description of the plugging method for those wells not svaled according to chapter 567-39 SAC.
- 4) Contained the following table:

(PHOTOCOPY IF ADDITIONAL SPACE IS NEEDED)

Wall of an Identified on Recogner Survey Map	fmr. Facility Well	Facility Well	Test Web			,					[
Wed Status										•	
Acuve	11	įxį	1.1	11	l i	Ħ	L)	11	-	- (1	Ξ
Inactive	1×1	11	[A]	П	U	11	1)	t I	11	11	1
Abendoned	- (1	+1	U	11	11	11	11		11	11	11
Plugged • Accords up to Ch. 39	41	11	1 i	i J	13	11	Ð	11	Ш	11	п
Not according to Ch. 39*	11	11	111	- 11	- 11	[]	(1	ш	11	(1	11

Describe in the appendix the physical process used for each wall marked.

Wall Like		For Each	Well, Mark	All That	Apply						
Patria Well	l)	(1	94	11	11	ti.	11	11	()	()	()
Propin Driesing Wall Tags Wall industrial Supply	11	ixi *	5.2	l i	U	E)	11	11	1)	11	П
Status Wester Lavel Elevation	NA	NA	MA								
Wed Dupth Bevoluer (Berrin Grade)	Дериов 240	Approx 74C	200								
Trigil Cierrotter	NA	NA	6.								
Cooling Motorral	Stee	Stare	5100								
Well Log Presided - NO	žni	141	/ a t	11	14	11	LI	11	£)	0	- 11
7 1 104	U.			Ţ	(i	13	11	1 1		0	Ξ

Land the narrative and information in Appendix VIII pertaining to the above with the heading "Groundwoods Well Survey."

D. Groundwater Barner Survey

Mantely the function of between 1 a Numbelonis structures, source less needs, natures, structures, the east house an object on the manuscript of the continuous or tester the apprincipment of the between by measure that processes to the deplengantees of mediatories at the structure of the struct

IX. Certification of Site Health & Sefety

(NEOUIRED)

Statement of Verification of On-Site Health & Safety Procedures.

The on-site health and safety procedures and conditions conform with applicable OSHA requirements.

Yes;e, Plo 🗓

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Soil Analytical Data Information

Provide a tabulation of ensiytical data for each act boring or munitoring well. List each sampling event channelogically with the about first, beings were sampled on a particular surface first. Record all leavations is feet above 5 each love (ASL).

Serry Med Survivo	7-1004	New-1	MW-1	1999-3	104-105	MW4	9-1	9-3	8-4	
Can Sarraian	9/18/07	0/14/02	à.15/02	B/18/62	6/18/02	10/16/63	10/10/93	10/15/83	10/18/83	
Standard St. A.B.) - Briant Surface	718.68	715 86	716.54	216.33	719.89	716.11	711 48	718.00	716.60	
Let Serve	700 19	mad ta	5710.68	7.5	707.23	9.5 708.41	81.40	700.84	6 7	
· Bille Drandmap	102.00	702.08	(C 3 rd)	17 3 C	1/1/2	A. Car				
Yaca Patrasur P Hydrocarbara, gypnej	0.0006.1	C.2089.2	но	0.01@	MD	HD.	0.0134	MD	0.013	
Extrapatio Archivolationa (gara)					1					Γ

Groundwater Analytical Data Internation

Provide a fabblished of groundwater sampling energical data. Dat the sampling events starting with the first well in the well identification scheme, if the well was sampled mere than once, list such result chanologically. Record all develors as feet Above See Level (ASL).

Deec 10/96/43 10	194.3 188W	3 3994	MAK-40	· · · · · · · · · · · · · · · · · · ·	 1		
				(min)-1	 L	L	
- Present Streeten 7 op pl Screen 700 35 75	20/93 19/20	93 10/26/63	10/19/03	1/6/84			
	5.86 21\$.2	2a 21 6 .11	798.11	719.66			
- Bryate Water Lacus 702.00 gr	2.00 704 ;	21 75%.01	706.61	790.66		ļ	
	703	37 846.88	696.65	700.62			
property to the last	1 1 1 1	140	MC	MD	 		
- No. 190	3 4 0 2.0	NO NO	NO				
Ca u	o.i 26	• No	MO	16			
Notice Units SAU	126 6.1	100	100	100			
MARK Prins	1		T				

>> Attach Appendix X "Laboratory Data Sheets"

A is free product present at the site? YES ::

Provide popular of all taboratory data wheets

A Free Product

ICONFINE YOUR ANSWER TO THE SPACE PROVIDED!

B. If yea, indicate the state the "Free Product Removal Report" was submitted:

•

C. Discuss the status and evaluate the infectiveness of the free product removal system in relation to the frydrogenilogical conditions at the site.

NO DO

Provide mainful reports to DNR on the ettached DNR FORMS 542-1424 and 542-1425.

XII. Contamination Source

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A. Identity the source of contamination at the site.

potential source of contamination is a 500-patton menufrotured steel UST.

>> 8. Attach Appendix "XII(B) - Off-Site Contemination Source Support Data"

If the contemporal neuron identified in XIIIA) is an off-site source, justify your conclusion with analytical data and maps showing the site under investigation and potential off-site sources and groundwater fluw direction.

XIII. Site Risk Classification

HIGH RISK SITE CONDITIONS.

This following describe high risk site conditions. Continues numbered 7, 9, 12, and 14 metude is means, based on specific site factors, for proposing a low risk classification. Check the appropriets but if documentation has been precided to substantiate the assertance of specific oits conditions that will resent in a low risk classification. As no is classification as not provided to softline is low risk classification. As responses must be justified with technical and hydrogeological data between the size of the specific oits. As responses and hydrogeological physical specification for recognized angineering, prological and hydrogeological principles. Give your justification for soch risks of the size of

COMPITIONS DESCRIPTION

COMPTIONS DESCRIPTION	
The Three-bold Limit Velore-Time Weighted Average (TLV-TWA) for betreen an accounted structures exceeds or us fittely to second 10 perts per million for more than 8 hours per day.	i i YSS. HIGH PANK [a] NO
2) The concentration of combustible gases in structures: becomente, stavel spaces, utility sendults, starm or sentrary servers, values or any other confines space eucoses or is blady to exceed 10% of the Lewer Explosive Limit (LEL).	() YRD, MIGH ROOK LL! MO
3: Surface water rushiny criteria standards contained in subruis 567-61.3(4558) of the lowe Administrative Code are exceeded or are likely to be exceeded due to a hydrogeologic connection between the surface water and the contamination zone.	() YRS, HIGH PAG ((x) NO
4) Patreleum contemneted sed exceeding 100 ringing total argenic hydrocurbans as in centect with a utility trench conteming a PVC drinking water transmission inc.	(1) YES, HIGH RINK
5) The patroleum contains about in utday trenches exceeds the corrective antien levels in 135.8(8) of the lower Administrative Code	() YES, HOSH MICK (x) NG
6) Petroleum contempeson is present at concentrations, or concentrations are likely to eccur to seuce physical demags to a utinity conduct or a structure.	() YED, HEAH RASK 运 NO
1) Soil with a total organi; hydrocarbon level greater than 100 mg/kg is social within 1,000 feet of an active well lead at 4 pibbs or private water source.	[] YES, HIGH MICK [x] NO
(A arts may be disserted as law risk if a groundwater professional can demenstrate the water source will not be impacted by the soll contamination to the extent that a MCL* is exceeded, or in the absence of a MCL, an Action Level* a exceeded. Factors that must be considered in executing the impact of the remaining soil contamination includes well depth, centruction, reduce of influence and use; men hydrogeological characteristics; sell persecutive, remaining out contamination consentrations and persistence; chemical characteristics, and migration potential of the relieved substance.)	Documentation is previded to support a LOW NISK CLASSIFICATION [IX] Y88, LOW PASK 1100
So Soul with a lotel organic hybrication level greater than 100 mg/kg is leasted within the sessional high ground letter level of a protected groundwater source or groundwater serving a public or private water source.	() YES, HIGH RISK (s) NO
The petroleum release occurred in an area of fractured limestone or stans topography (i.e., topography formed on temestone, gypsum, and other rocks by dissolution, characterized by enti-holes, caves, and underground drainage).	() YEO, FORK PLAK (u) NO
IA sits may be classified as low risk if a ground/sister professional can demandrists that the presented groundwater nources in the area of the petroleum release will not be invasced by the contaminated to the orders that a MCL is accessed. If no the sheence of a MCL, an Action Level is accessed. Factors that must be sensitived in evolutions the impact of the petroleum contamination include area hydrogeological characteristics; separation distance between the contaminated zone and pretected groundwater sources; sod permeability and transmissivity; overburden discharses and contamination concentrations; and the presentance, characteristic shed witgration potential of the released substance.]	Decumentation is provided to support a LOW RISK CLASSIFICATION LIS YES, LOW MARK 11 NO
10) A public or private water supply is an is likely to be contemprated to the extent than a MCL is exceeded; or in the absence of a MCL or Action Level is exceeded.	
11) A protected proundwater source is contamine ad to the extent that a MCL is exceeded; or in the absence of a MCL, an Abbon Level is exceeded.	[] YES, FROM SHOK [x] MO

11 YES, HIGH MOK 12) The or-marximited groundwister plume is within 100 feet of natural or men-made structures or conduits that could allow the vertical or honzootal impression of contaminants to a protected proundwater source that is used as a In MO ACTUAL TRAINING STRUCTS OF STRUCT fal YES, HIGH PLAN J. The partiamental groundwater Diums is within 1,000 Lest at an active public or private mater soutes. I I NO (A site may be disserted as low risk if a proundwater professional can demonstrate that the protected croundwater source will not be impected by the groundwater contemination to the extent that a MCL is expended, or in the Decementation in absence of a MCL ac Action Level is exceeded. Fectors that must be considered in evaluating the impact of the provided to suspent # remacing groundwater contamination motivile well depth, construction, radius of influence and area hydrogeological LOW RISK CLASSIFICATION pheraptensities; sor premarbility and transmissivity; contamination concentrations and persistence, charried characteristics and repretion potential of the released substance.) Is) YOR, LOW MICK 11 NO 14) The marking weparating groundwater serving as a p-blic or private water searce, or which is a protected () YES, HEGH PASK proundwester source, from east with a total ringelies hydrocarbon level gleaster than 140 mg/kg which has a hydrocilis ist NO conductivity greater than 10° maters per day. Documentation is (The segarating material must have a hydraulic conductivity less than or equal to 10° meters per day, a minimum provided to support a thackness of three motors and be free of outpurface discontinuities between the contamination zone and the LOW RICK groundwardt for the site to be cleanfied low risk. A site can be cleanfied tow risk if a groundwardt professional can CLASSIFICATION demonstrate with hydrogeological and makessemment date that the superstand measured by Prevent or Whibit the regramm of contaminants to the groundwater to the extent that a MCL is exceeded, or in the absence of a MCL, as IN YES, LOW RICK Action (avel will not be exceeded. A sufficient number of measurements of the hydrausis conductivity shall be made 1180

Maximum Contemporary Level as durined in subrule 567-41.3(4558) of the lower Administrative Lode
Action Level as defined in 667-133-2(4658, 4555) of the lower Administrative Code

to accountately identify the hydrage-blogic continues of the separating metawal under the full area extent of the continuation zone. Absolutements shall be made at a minimum of two locations. The detartions between disjoint intercurrent in locations shall not scooled 100 feet. The department may require additional imagestationate based on

B. LOW RISK SITE CONDITIONS

the hydrogeological complexity of the arte.)

following describe him not sith conditions. Check the boxes that describe the site conditions.

CONDITIONS DESCRIPTION

i) The soil forei organic hydrocerbon concentration exceeds 100 mg/kg or the ground-water perpointration exceeds a MCL, or in the absence or is MCL, an Action Level is exceeded, but high risk conditions do not exist and are not lifely to occur.

Z; fight hask conditions numbered 2, 9, 12 or 14 exist, but documentation is provided to substantiate the claim that specific may condition on present that will result in a low risk classification.

Maximum Contenuant Level as defined in subrute 567 41.3(4558) of the lower Administrative Code

Action Levis as dehined in 667-123 20/558, 455E) of the lewis Administrative Code

6. NO 40TION REGISHED SITE CONDITIONS

The following describe he action remined site conditions. Chara the boxes that describe the site conditions.

CONDITIONS DESCRIPTION

The noti total urganic hydrocarbon concentration is equal to in less than 100 mg/kg and the groundwater contamination is equal or see than a MCL, or in the absence of a MCL, is equal to er less than an Artisin Level, and legit risk or less than an order on exact and are not lakely to occur.

>> Attech Appendix "XIX - Site Risk Com/Foutier Justification"

Maximum Continuous Level as defined in subrule 557 41.3(4558) of the lower Advantages Code

Action Level as defined in 567 133 2(4558: 455E) of the lowe Administrative Code

XIV. Corrective Action Response

The corrective action response involves the identification of the best evaluate transment promising or best evaluate management provides to address the consumers provides action response must be consumer with the sits first describingsion.

terminered sites classified as high new can be recleasified to low risk if the condition bearing the classification is abstead. For example, if the only seen a site was classified high risk in hecessee the soil eround a PVC water his as contaminated, the site could be revisatified to low risk if the water has see replaced. For such attack identified as high risk, propose a corrective action responses that wall result in the reclassification of the site to low risk.

Please proceed to pen "A" if the ent has been classified as high risk. Sites classified as low risk, are subject to best management practices which will include contamination monitoring. Please proceed to part "B" if the site has been classified as low risk. Sites classified as no risk are not required to remarked or monitor.

A. High Risk Site Corrective Action Recommendations

Free Diverse petroleum product present?

If yes, approximate vorume of free phase product present,

1. Identify below the contamination phases and estimated phase volumes at the site:	
Variable zone sor contamination present? If yes, approximate valums of contaminated soc present.	HO [)
Distolved phase patholoum (traduct present in the groundwater?	MO []
If yes, approximate volume of contaminated groundwater present	 وتخوو

YES (1

NO []

2. List at least two treatment technologies available to address the contamination at the site.

> 3. Attach Appendix "XIV(A3) - Treatment Technology Evaluation"

Provide an evaluation of each treatment technology listed in XV(A3) organized as follows:

- Treatment Technology Wentsfy the treatment technology.
- 2) Instituent, Mathod Effectiveness. Evaluate the treatment method's capability to reduce the compounds of concern to acceptable levels and vereness the length of time it will take to reduce the compounds to these levels.
- Relability. Evaluate factors that may have as impact on the relability of the treatment system. Consider such factors as groundwater quality, biological growths, design complexity, weather, operational impressioned and monitoring requirements, etc.
- 4) Site Characteristics. Evaluate the factors that may have an impact on the proof-calling of using the treatment method. Cartelidar such factors as into goology, hydroxic conductivity, providinater quality, site location and ethics to maintain and monitor implicable sensel of the grandwater planes.
- 5) Cost Exempter. Evaluate start-up, operational and maintenance costs.
- Environmental, Public Neeth and Sefry Senetite and Disadventages. Evaluate the environmental and public health and settly benefits and disadventages of the treatment system. Consider such factors as all emissions, waste visiter discharges, ground water injection systems: permits required, vanigation, access, atc.

>> 4. Attach Appendix "XIV(A4) - Best Available Technology"

Let your selection of the heat available freshment sechnology to address the consumeration phases at this site. Provide a detailed justification and esplanation for selection int this technology. Been the justification necessarily provides considering select each justification retrieved in professionals justification in uses, justimate technological and separation of technologic medical provides and separation formats, engineering and ground retex professional inference melecular, computation with experts in the field, capital and speciation coast, and guidelines or rules of other regulations agencies. Another technology design calculations are enjourned but must be economized but must professional and school and the results of the results are supported to the professional and school pro

5. Report Submittal

347

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1

Please sent one copy of the completed SCR and appendices to the lows Department of Natural Resources, Luct Coordinator, Wallace Building, Des Moness, IA 50319 and one nepy of the caripleted SCR and appundices to GAB Business Sansees, Inc. POS 3837, Des Maines, IA 50322. Additional information or centrication may be required.

Fullowing approval of the SCR, IDNR will require the submission of a Corrective Aution Design Report ICADR). The CADR will contain technical information specific to the treatment evenes closes to remediate the site and a moretoling proposal designed to determine the effectiveness of

Low Risk Site Corrective Action Recommendations

1. Identify below the contamination phases and estimated phase volumes at the site:

Vadorse zone seel contemmination present?
If yes, approximate volume of conteminated seel present.

YES () NO (s) NA Cultin Yards

Dysecuted phase paralleum product placent in the groundwater?

Y86 (x) NO () 341.93 Coffees

Free phase patinisum product present?

YES | NO (c)

If yes, approximate volume of free phase product present

>> 2. Attach Appendix "XIV(B2) - Best Management Practice"

Provide a detailed best management practice plan. At a minimum, the plan must concern

- Description of leak detection activities that will be implemented at the etc.
- Schedule of activities and decorption of any professive practices, and other management practices, or a combination charact, which will be impremented to prevent additional contemporation.
- 3: Assurances the analysical and investigatory technical requirementa discussed and referenced in this SCR will be followed. Vapor serving regular will be accepted provided that:
 - at It can be demonstrated that the media being sampled and sampling points are conductive to the detection of contamination movement and increases in concentration it at, the sampling radius must be determined.
 - b) Gas chromatography or similar method of analysis is used for engines of samples.
 - Screening for laboratory analysis must be obtained if the following something levels are exceeded.

2 t mg/l TPHC (near curse) facilities for soil gas (in mtu, partial vacuum extraction)

1.0 mg/h
TPHC trees genome techties for onliges tin etts, partist venuum extraction!
0.5 mg/h
1PHC for ground water (head space analysis).

1 Denging TPHC is 10 Cenaha TPHC is

TPHC (mear diseas facilities) for soil (head space analysis)
TPHC (near descrine facilities) for soil (head space analysis)

>> 3. Attach Appendix "XIV(83) - Monitoring Plan"

Provide a monitoring plan that will ansure any agrahizant increase in contamination or movement is detected. The number and locations of minimum plans to the more contamination plans definition, and permeabilistic, hydraulio conductivities and provide where free demands include size maps to snow more contamination. The following freezency in recommended. Any proposed reduction in the recommended sempling must be justified. Fantors that must be considered in the justification include the imagnition potential of the released substance, peternial interest in the environment and audior health if imagnition of the self-or graniformized contamination occurs, see hydrogeneous creamments and product health if imagnition of the self-or graniformized contamination occurs, see hydrogeneous creamments.

YEARS AFTER APPROVAL OF THE MONITORING PLAN

SAMPLE IN

4 Resort Submittel

Please, and one cony of the completed SCR and appendices to the lowe Department of Natural Resources, List Coordinator, Welliede Building, Des Mannes IA 50318 and one copy of the completed SCR and appendices to GAR Business Services, Inc. POS 3837. Des Monnes, IA 80322. additions information or dentination may be requested.

Monitoring results must be submitted in the formet required by IDNR's Site Monitoring Report. A copy of the 5-te Mentering Report will be provided after the SCR is approved.

APPENDIX II (C) TANK & LINE TIGHTNESS TESTING RESULTS

34K -- :55

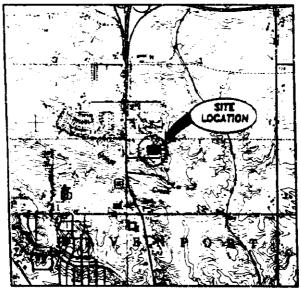
Tank and line tightness testing was not completed on this 500-gallon abandoned in place tank. The tank was closed in place prior to any effective IDNR regulations.

Tank tightness testing was completed for the three newly installed tanks. The tanks passed Senera Corporation's tank tightness testing with no anomalies. Tank tightness testing for the new USTs are not required as part of this SCR.



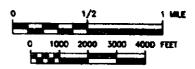
COOK COUNTY T 78 N, R2W SEC. 12





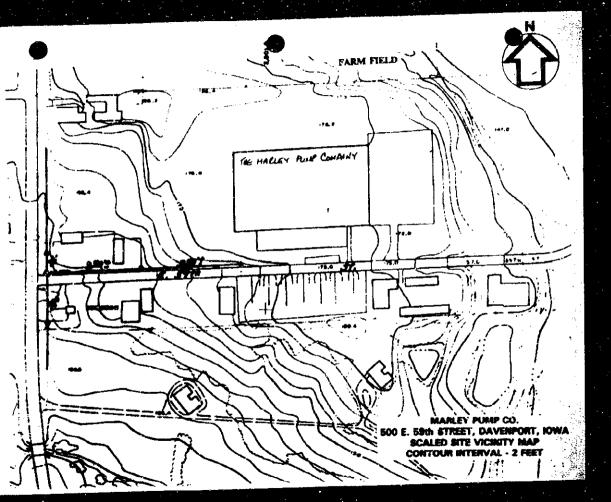
SOURCE: U.S.G.S. DAVENPORT EAST, IOWA - ILL. (1975) CONTOUR INTERVAL - 10 FEET

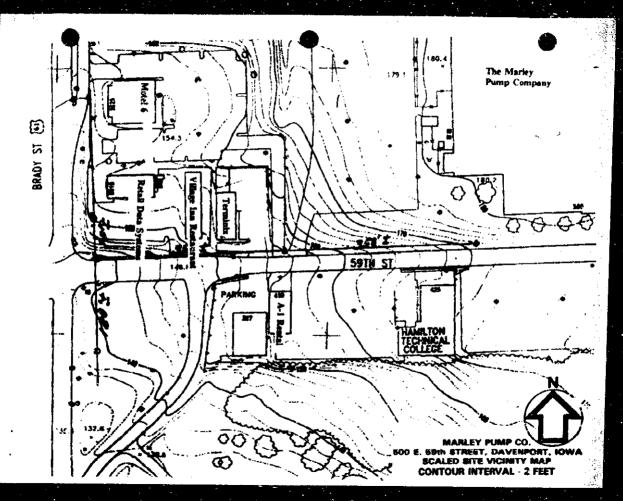
SCALE: 1:24000



TOPOGRAPHICAL SITE MAP

The Marley Pump Company 500 E. 59th Street Davenport, Jowa APPENDIX II(F)
SCALED SITE VICINITY MAP





Cruciable Service Center

Engineered Seal Products

Acre Plumbing

Refractory Insulation Supply Inc. H&H

Allen Sign Co.

Quality Printers Machinery and Supply Paddiston Boarding Kennel

> Neilson Plumbing Campbell Electric lows Bearing

Crystal Refrigeration

594 Street

EXTENDED SITE VICINTIY MAP NO CONTOUR INTERVAL

Contrar interest and provided. These plan are greater than 1,000 flott group from history.

SOIL BORING LOG & MONITORING WELL CONSTRUCTION DIAGRAM

OIL DO	UNG		<u> </u>	MONIT	MING	WELL	COMPIN	UCTION DIAGRAM
Boring/Well	#	Facility Name	MAR	LEY PUMP	COMPANY	Facility Address		
Boring Dept 25		t) = Dic	ome te	(Inches) 6.25*		Drilling	Method HOLL	OW STEM AUGER
Well Control Registration		MDECO				Logged	by METCA	UF & EDDY
Date & Time Start	9/16/ 0910		Date Time	& 9/16/ End 1020		ind Surfac ation (ASI		Lust Number BLTS84
Depth in Feet	West	Construct Detain	xon	Blow Count	Sort No.	rpie Type •	PID/FID Reading	Rock Formations, Sail, Color and Clessifications, Observations (moisture, etc.)
D-2.5	1 1			NA.	1	3" O.D. \ 5' LONG SS	0 ppm	Moiet proust, sity fine sand, trace erganize (SM)
2 5+5.0				NA NA	2		178 ppm * Questionable PID Reading	Moiet brown with gray mottling sit with trace organics (SM,
50-75	1			NA	3	3" O.D. 5' LONG 55	PID Not Working Property	Brown with gray mottling, rootet, allt with trace clay (ML)
7.5-10.0	7			NA	4		PID Not Working Property	Brown with grey mottling, moist, sit with trace clay (ML)
10 0-12.5	▼ 11	03		NA	5	3" O.D. 5' LONG 5S	0 ppm	Brown with grey metting, moist, soft all with some city (ML)
125-150	₩ 1:	2.89		NA.	6		0 ppm	Brown and gray, moist, soft, clayay sht (ML)
15 0-17.	5			NA.	7	3° O.D. 5' LONG SS		Brown and gray, molet, very soft clayer set (ML)
17.5-20.	0			NA	8		0 ppm	Gray, moist, very soft, clayer set (ML)

a SS (antit enough HS (holow stem euros)

OBSERVATIONS	Date 9/17/92	19/1/12 13/25/34	l	l
WATER LEVELS	Level 12.89	13.66		
Static Water Level Symbol v	Time . 0745	10/1/13 5/25/94 11.03 13.66 0746 1030		

SOIL BORING LOG & MONITORING WELL CONSTRUCTION DIAGRAM Boring/Well # Focility Facility 500 E. 50th ST. Name MARLEY PUMP COMPANY Address DAVENPORT, IOWA MW-1 Drilling Method HOLLOW STEM AUGER Boring Depth (Fest) a Digmeter (Inches) Well Contractor INDECO INC Logged by METCALE & EDDY Registration # 1.D. 0007201 9/16/92 | Date & 9/16/92| Ground Surface Date & Lust Time Stort 0910 Time End 1020 Eleration (ASL) 715.68 Number 8LTS84 Rock Formations, Sol, Calor and Cassifications, Observations (mainture, etc.) Depth PIO /FIO Well Construction Blow Samole m Feet Detoes Reading Count Groy movet soft clayey sill (ML) 3° O.D. 5' LONG 20 0-22.5 NA 9 C ppm Gray maiet eity clay (CL). At 24.5-25.0ft, dry, hard, glacial till with many fine pebbles (CL) 10 0 ppm 22 5-25.0 NA E.O.B. - 25f1 SS (spi:s spoon) HS (notion stem away) OBSERVATIONS

WATER LEVELS Static Water Level Symbol v

SOIL BORING LOG & MONITORING WELL CONSTRUCTION DIAGRAM

Boring/Well MW-2	*	Facility Name		EY PUMP	COMPAN	Focility Y Address		DIN ST. RT, IOWA
Boring Cep 25		et) × Di	orneter	(Inches) 6.25"		Doilling	Method HOL	LOW STEM AUGER
Well Cantro Registration		NDECC 10. 000				Logged	by METCA	N.F & EDDY
Date & Time Start	9/15, 1110	/92	Date Time	k 9/16/ End 1220_	92 Gro	und Surfec	e .) 715.56	Lust Number 8LTS84
Depth in Feet	Wali	Canstruct Details	KOF-	Blow Count	Sa No.	mpie Type •	PID /FID Reading	Rock Fermations, Sell, Color and Classifications, Observations (moisture, etc.)
02.5				NA.	,	3" O.D. 5' LONG 5S	0 ppm	Block-brown, demp, efty fine sand, with trees organics (SM) Block, camp, fine sand with medium sand, little sit (SW
2 5-5.0	• ! ! ! !			NA.	2		0 ppm	Grown damp hard clayey set (ML)
5 0-75				NA	3	3" O.D. 5' LONG SS	0 ppm	Brown-black famp <i-yay eft, soft, trace organics (ML)</i-yay
7 5-10.0	1			NA	4		0 ppm	Light brown and gray mottled moist, soft clayey set (ML)
10 0-12 5				NA.	5	3" O.D. 5" LONG SS	0 µpm	Brown and gray, Maist, soft clayey sit (ML)
12.5-15 (▼ 1.	3.75		N/A	6		0 ppm	Brasin and gray, moint, soft clayery aft (ML)
15.0~17.5	1	5.57		NA	7	3° O.D. 5' LONG SS	0 ppm	Brown and gray motited moist, soft slayey sift (4K.)
175-20	0			NA NA	8		0 ppm	Brown and gray mottled a molet, soft clayey sift (ML

The state of the s SOIL BORING LOG & MONITORING WELL CONSTRUCTION DIAGRAM Coring/Well # Facility 500 E. 59th ST. Facility Nome MARLEY PUMP COMPANY Address DAVENPORT, IOWA Drilling Method HOLLOW STEM AUGER Boring Depth (Feet) x Diameter (Inches) Well Contractor INDECO INC Logged by METCALF & EDDY Registration # 10, 0007201 Cate & Date & 9/16, Time End 1220 9/16/92| Ground Surface 9/16/92 Time Start 1110 Elevation (ASL) 715.56 Number 8LTS84 Cepth **Well Construction** Blow Sample PIO/FIU Rock Formations, Sell, Color and Cassifications, Details Count Reading r Fuet Observations (maisture, etc.) 1104 Gray, moist, very soft 31 O.D. selly day (CL) 5' LONG 0 ppm 20 0-22 5 NA 55 Gray damp sity day with some medium send (SM/SC) Gray dry hard, elected till (1 ft) (CL) 22 5-25 0 NA 10 mag C £.0.8 - 25ft

SOIL BORING LOG & MONITORING WELL CONSTRUCTION DIAGRAM

Boring/Well		Focility		MONITO		Facility	500 E. 59	
MW-3 Boring Dep	th (Fe				COMPANY			OW STEM AUGER
Well Contro		INDECO	INC.	6 25		Logged	by	
Registratio		1.D. 000	7201					LF & EDDY
Date &	9/18 1330		Date Time	& 9/16/ End 1450		nd Surfac stion (ASL		Lust Number 8LTS84
Depth in Feet	Wedi	Construct Details	HON	Blow Count	Som No.	pie Type •	PID/TID Reading	Rock Formetions, Sell, Color and Cleasifications, Observations (mainture, etc.)
0-2.5				NA	1	3" Q.D. 5' LONG SS	O ppm	Brown, damp, aft with some cles, little fine sond (ML)
2 5-5 0				NA.	2		O ppm	Brown, damp, seit, aleyay sit, Hitle Ma send, trace organica (ML)
50-75				NA	3	3" O.D. 5' LONG 5'5	0 ppm	Light brow: with grey mottling, damp, vary soft cleyey alt (ML)
7 5-10.0	▼ 9	7		NA.	•		0 ppm	Brown with grey mattling domp to melist, very soft, clopey all! (ML)
10 012 5	· ▼ ;	1.62		NA	5	3" O.D. 5' LONG SS	0 ppm	Light brown with gray mottling, vary soft clayey aft (ML)
12.5-15.6	2			NA.	6		Орргп	Light brown with gray mottling very soft eleyey sit (ML)
15.0-17.	5			NA	7	3° O.D. 5' LONG SS	141 ppm	Gray maint vary selft clayery ailt (IR.)
17 5-20	0			NA	8		O ppm	Crey maint very scrit clayer set (ML)

<u>o 55 (april ancon). H5 (hollow starn qu</u>	regr)	
OBSERVATIONS WATER LEVELS Static Flater Level Symbol v	Date: 9/17/92 10/17/92 5/25/94 1/8/94 1/8/94 1/8/2 9.7 12.26 14.41 1.7	

25	h (Feet) x D tor INDECC	5 2		Drilling Logged	Method HOL		
	# ID 00				METCA	AUF & EDO'	Y
inte & ime Start	9/16/92 1330	Date & Time End	9/16/92 G 1450 E	iround Surfer Revotion (AS	ce L) 715.23	Lut S Nu	ut moer 8LTS84
Depth st Feet	Well Construe Dataile		an : unt No	Sample	PID/FID Reading	Color and	rmetions, Soil, I Classifications, s (moisture, etc
0 0-22 5			44 9	3" O.D. 5" LONG SS	O ppm	Gray, moiet airt. 20-21 Gray dry h fine patitie	t very soft clay fl (NL) ard clay with a (CL)
2 5-25.0			NA 10		Оррт	Grey, dry, with fine p till (CL)	hard clay
	ξ.Ο.Β. − 2	15ft					· · · · · · · · · · · · · · · · · · ·
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SOIL BORING LOG & MONITORING WELL CONSTRUCTION DIAGRAM

Boring/Well	Nome	MARLEY PUMP C	OMPANY			RT, IQWA
Boring Cept		igmeter (Inches) 6.25°		Drilling	Hethod HOU	LOW STEM AUGER
Add Junto Registration		ION CONSULTANTS 278		Logged		ORY NLF & EDDY
Date & Time Start	10/19/93 1 340	Date & 10/19/9. Time End 1505		nd Surfaci ation (ASL		Lust Number 8LTS84
Deptr in Fest	Well Construe Details	Silver Count	Sam No.	rie Type	PC/FID Reading	Rock Fermations, Sell, Cator and Classifications. Observations (meisture, etc.)
20-46		3/3/2/3	,	2" O.D. 2' LONG SS	0.2 ppm	Brown w/ arange strictions, med. denes, slightly pleetic damp, slity day (CL)
45-65	: : : : :	2/2/2/3	2	2" 0 0. 2' LONG SS	0.2 ppm	Top 10" - Breen, dense, moiet plastic clay (CL) Bottom 5" - black/gray, dry, slightly plastic clay (CC)
70-90		1/1/2/1	3	2" O.D. 2' LONG 5S	0 ppm	Brown, med. dense, damp, slightly plantic allt with some clay. At bettern 2' brown/gray mettled (ML)
95-115	1	1/3/4/4	4	2" 0.0. 2' LONG SS	0 ppm	Ten/gray, moiet, slightly plastic med. dence sit. Battom 6° has arenes strictions (ML)
12 0-14 0		2/2/2/3	5	2" O.D. 2' LONG SS	0 ppm	Ton/gray with orange strictions, med. demse, slightly pleate, wet, all (ML)
14.5-16.5	₩ 16.16	2/2/2/3	6	2° O.D. 2' LONG SS	0 ppm	Ten/grey with orange strictions, mad dense, slightly plastic, well, sit (ML)
17 D=19.		2/2/1/2	7	2" O.D 2" CONG SS	0 ppm	Tan/gray with armige strictions, mad. dense, slightly plastic, wet, sill (ML)
19 5-21	5	2/2/3/3	8	2" O.D. 2' LONG SS	0 ppm	Top 12" - gray with evengs strictions, ally clay, duma elightly placetic (CL) Bottom 12" - gray, very dense, maint, the gravel (TIL)

4 55 190-1 spulon) HS (h-Mov stem ouger)

OB:ERVATIONS Date 107/20733 5/23/94 APPLIED 16:76 16:92 Stoke Moter Level Symbol v Time 03:30 0825

SOIL BORING LOG & MONITORING WELL CONSTRUCTION DIAGRAM Boring/Well # 500 E. 59th ST.) Facility Focality Name MARLEY PUMP COMPANY! Address DAVENPORT, IOWA Orilling Method HOLLOW STEM AUGER Boring Septh (Feet) x Diameter (Inches) Meil Contractor TERRACON CONSULTANTS D. STORY Logged by METCAUF & EDDY Registration # 1D 40278 10/19/93 Date & 10/19/93 | Ground Surface Lust 715.68 Time Start 1205 Time End 1215 Elevation (ASL) Number 8LTS84 Depth Well Construction Blow Sample PIC/FIO Rock Formetions, Soll, Color and Cleanifications an Feet Details Count Receing Observations (melature, etc.) 7190 4 Orange/brown mottled 2" O.D. damp, slightly plastic sity day (CL) 2.3 ppm 2/2/2/2 2' LONG 20-40 55 Top 4"-Brown/orange/black 2" O D mottled, malet, slightly plantic set with some clay. 8.2 ppm 2' LONG 40-60 2/1/2/3 2 Brown with arange strictions saturated, slightly plastic oilt with some clay (ML) SS Brown with arange strictions saturated silt with some clay, slightly pleatic (ML) 2* O.D. 2/2/2/3 2' LONG 2.9 ppm 60-80 3 ŠS SS [split speen] HS (hollow stem auger) **ORISERVATIONS** Date WATER LEWIS LOVE

States Water Level Symbol v

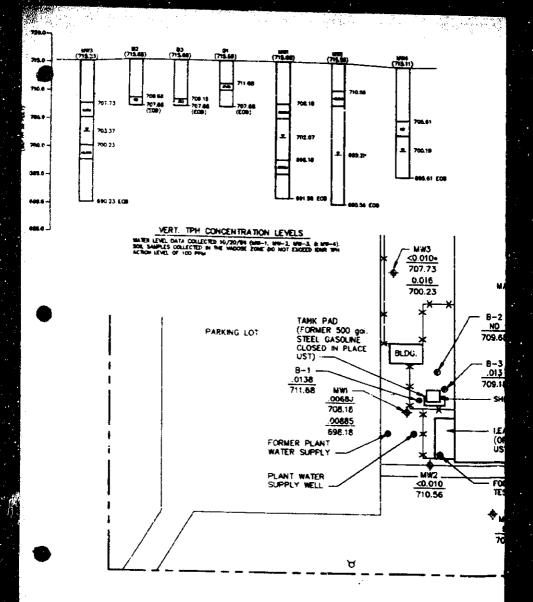
Time

SOIL BORING LOG & MONITORING WELL CONSTRUCTION DIAGRAM Focility 500 E. 59th ST. Boring/Well # Facility Name WARLEY PUMP COMPANY Address DAVENPORT, IOWA 8-2 Drilling Method HOLLOW STEM AUGER Boring Depth (Feet) x Digreter (Inches) 6 25" Well Contractor TERRACON CONSULTANTS D. STORY Logged by METCALF & EDDY Redistration # 10, 40278 10/19/93 ! Date & 10/19/93 i Ground Surface 715.68 Elevation (ASL) Time Start 1220 Time End 1247 Number 8LTS84 Rock Formations. Soll. Color and Clessifications. Depth Well Construction Box Sample PID /FID in Feet Cetoss Count Reading Observations (mosture, etc.) Type . Brown with orange strictions 2" O.D. and black specs, moist to set sightly plastic all with some clay (ML) 2' LONG 2.7 opm 2.0-4 G 2/1/2/3 ŠS Brown with orange strictions 2° O.D. and black specs, moiet to wel slightly plastic sit with some clay (ML) 3.3 ppm 2' LONG 4 O-+6 C 2/1/2/3 2 ŠS Brown with orange strictions 2" O.D. and block specs, moist to well slightly placetic sit with some clay (ML) 60-80 2/2/2/3 3 2' LONG 3.8 ppm SS (entit ennough MS (hollow etem, super)

a 2.2 Labut abook) wa (notion areas	······································
OBSERVATIONS	Octo :
WATER LEVELS	Terne
Static Water Level Symbol v	Time:

SOIL BORING LOG & MONITORING WELL CONSTRUCTION DIAGRAM Boring/Well # Facility Facility 500 E. 59th ST. Hame MARLEY PUMP COMPANY Address DAVENPORT, IOWA 9-3 Drilling Method SOLIO STEM AUGER Boring Septh (Feet) x Diameter (Inches) 5 25 • D. STORY TERRACON CONSULTANTS Logged by Well Contractor METCALF & EDDY 10. 40278 Registration # Lust 10/19/93 Date & 10/19/93 | Ground Surface Date & 715.681 Number 8LTS84 Time Start 1550 Time End 1610 Elevation (ASL) insti Construction Bto= Samore PIO /FIO Rock Formations, Sol. Reading Color and Clessifications, e Feet Describ Count Observations (moisture, etc.) 198.5 Brown (it. and dark)/gray mottled. maint, plantic 2 O.D. HYDRAUL 0.0 ppm 1.5 LG. mod dense day (CL) 20 - 35PUSHED SS Brown with block specs 2° 0 0. moist to wet, plastic 2 LONG HYDRAUL 0.0 ppm sit with some clay 2 5.5-5.5 PUSHED mod. dense (ML) Brown, wet, mod. dense, 2" O.D. slightly plastic set (ML) HYDRAUL. 15' LG. 6.5-80 3 0 ppm PUSHED SS

water) 2H (neces hige) 22 -	stem ouger)			
CRSERVATIONS	Date	_11	.	-\
WATER LEVELS	Lever	_	·	-
Static Water Level Symbol v	Time	1	·	-





SCALE IN FEET LEGEND

PROPERTY LINE FENCE ਖ FIRE HYDRANT MONITORING WELL SOIL BORING WELL GROUNDWATER ELEVATION ESTIMATED VALUE CONCENTRATION BELOW LABORATORY DETECTION LIMIT. CONC. OF TPH IN PPM .006BJ (HORIZONTAL DISPLAY) 709.18 SOIL SAMPLE ELEVATION CONC. OF TPH IN PPM (VERTICAL DISPLAY)

. DUPLICATE SAMPLE YIELD EXACT RESULTS

NOTE:

MWY, MWZ, & MWS WERE USED TO DETERMINE IN-SITU HYDRAULIC CONDUCTIVITY. A LABORATORY PERMEABILITY TEST WAS CONDUCTED FROM MW2

ELEVATIONS WERE MEASURED AGAINST MEAN SEA LEVEL.

IDNR ACTION LEVEL FOR TPH (100 PPM) WAS NOT EXCEEDED IN ANY SOIL SAMPLE COLLECTED IN THE VADOSE ZONE FOR EACH SOIL BORING OR MONITORING WELL. THEREFORE, A PLUME MAP ILLUSTRATING OR SATURATED EXCEEDANCE OF 100 PPM TPH IS NOT APPUCABLE.

MW4 DATA COLLECTED ON 10/19/93

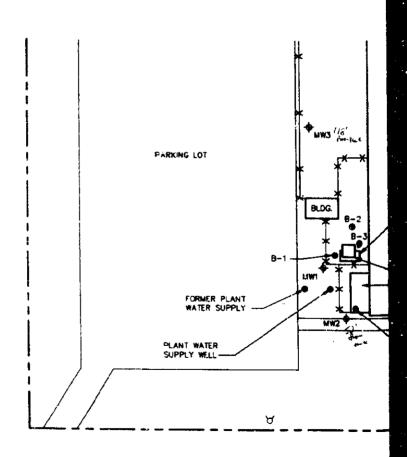
SOIL CONTAMINATION PLUME MAP

The Morley Pump Company 500 E. 59th Street Davenport, lowa

NUFACTURING BUILDING

n to Erating System)

OFFICE BUILDING





0 25 50 160 SCALE IN FEET

LEGEND

WELL

= PROPERTY LINE
= FENCE

= FIRE HYDRANT

MW3 = MONITORING WELL

B1 = SOIL BORING

NO PRODUCT LINES OR DISPENSERS WERE USED FOR 500 gol. USY, THIS WAS A

UST:

TEST TANK ON! Y

- 1 SIO GALLON MANUFACTURED STEEL GASOLINE UST. NO PRODUCT LINES, FILL LINES, OR DISPENSERS ASSOCIATED WITH THIS UST. ABANDONEI IN PLACE 8/87 - 11/47.
- 3 560 GALLON DOUBLE WALL STEEL WITH STP3 TANKS. THE UST'S WERE 'NSTALL' 3/92 AND CONTAIN UNLEADED GASOLINE OR METHANOL. NO UNDER YARD PIPHO ALL ABOVE GROUND. NO FUEL IS DISPENSED. FUEL IS RECIRCULATED BAC TO TANKS. THESE ARE TEST TANKS ONI

SCALED SITE PLAN

The Marley Pump Company 500 E. 59th Street Davenport, Jowa

MANUFACTURING BUILDING

TANK PAD
(FORMER 500 gal.
STEEL GASOLINE
CLOSED IN PLACE
UST)
— SHED

- Lean to (Operating UST System)

FORMER
TEST WELL

OFFICE BUILDING

SOIL BORING LOG & MONITORING WELL CONSTRUCTION DIAGRAM Facility Boring/Wetl # Facility 500 €. 59th ST. Nome MARLEY PUMP COMPANY Address DAVENPORT, IOWA WW-1 Drilling Method HOLLOW STEM AUGER Boring Depth (Feet) = Diameter (Inches) Weil Contractor INDECO INC Logged by METCALF & EDDY Registration # 1.0. 0007201 Date & 9/18/92 | Date & 9/16/92| Ground Surface 715 68 Time End 1020 Time Stort 0910 **Elevation (ASL)** Number 8LTS84 Rock Fermations, Sell, Depth Well Construction Fit ow PID/FID n Feet Detests Count Reading Color and Classifications, Observations (mainture, etc.) Three 4"x4"x8" Burnoer Posts placed around well Well Cap Top of Cusing (TOC) Podock - Concrete Coller (2 ft ± 2 ft) 95 ft Ground Surface 5 ft king Steel Protective Cover - Concrete Sedi Borshole = 6.25 inches 0.0. 36 4 2 inch Q.D. SOH 40 PVC Rimer Cement/Bentonite (5%) Growt 11 Ø M Hydrated Bentonite Chies *3.0 R . . 13.59 M . . Top of Screened Internet . - Filter Puck 2 Inch 0.D. SCH 40 PVC Screen 0.010 Inch Foctory Stotted 24 B M --- SS (split spoon) HS (hollow stem ouger) OBSERVATIONS Date: | 9/16/92 | 10/20/93 14.75 WATER LEVELS 3.0

Static Water Level Symbol v

SOIL BORING LOG & MONITORING WELL CONSTRUCTION DIAGRAM Facility Name MARLEY PUMP COMPANY Borma/Weil & 500 E. 59th ST. Facility Address DAVENPORT, IOWA WW- 2 Drilling Method HOLLOW STEM AUGER Boring Depth (Feet) x Diometer (Inches) Well Contractor INDECO INC Logged by METCALF & EDDY Registration # 1.D. 0007201 9/16/92) Ground Surface 9/16/92 Date & 715.56 Time End 1220 Time Start 1110 Elevation (ASL) Number 8LTS84 1 Weil Construction Depth Blow PO/F0 Rock Formetions, Sed. Color and Closeffications, Observations (moleture, etc.) n Feet Detoës Count Reading Two 4"x4"x8" Bumper Poets placed ground well West Cop - Top of Casing (TOC) - Padřack - Concrete Coller (2 ft x 2 ft) 00 " Ground Surface -- 5 ft long Steel Protective Cover - Concrete Sedi Borehole = 6.25 inches 0.0. 50 # 2 incn 0.0. SCH 40 PVC Riser Cement/Bentonito (5%) Grout 90 # - Hydroted Sentonite Chips 115 4 13.5 11 - Top of Screened Interval - Filter Pock 16 59 ft -Z Inch O.D SCH 40 PVC Screen

. 22 (abit aboou) N2 fuotion atem d	<u> </u>
OBISERVATIONS	Date 9/19/92 19/29/83 12.38 12.30 12
WATER LEVELS	Love: 17.58 16.56
Stotic Water Level Symbol 9	Time : 1230 9630

0.010 Inch

Factory Slotted

235 ft -

EOB 258

SOIL BORING LOG & MONITORING WELL CONSTRUCTION DIAGRAM 500 E. 59th ST. Boring/Well # I Focility Facility MARLEY PUMP COMPANY 4W~3 Nome Address DAVENPORT, IOWA Drilling Method Boring Depth (Feet) x Diameter (Inches) HOLLOW STEM AUGER INDECC INC Well Contractor Logged by METCALF & EDDY Registration # 10, 0007201 9/18/92 9/16/92: Ground Surface jDote &ar 715.23 Time Start 1330 Time End 1450 Elevation (ASL) Number 8LTS84 Decin Well Construction Blow P10/F10 Rock Formations, Soc. Color and Classifications, Observations (moisture, etc.) n Feet Detoes Count Receing Three 4"k4"k6 Sumper Posts placed ground wall - Top of Cosing (TOC) Podock - Concrete Callor (2 ft x 2 ft) 0.0 11 3round Surface 5 # long Steel Protective Cover Concrete Seal 2 inch 0.0. SCH 40 PVC Reser 5 C ** - Hydroted Bentonite Chips 9 C fr 11/2 19 ... Top of Screened Interval Burehote = 6.25 inches 0.0. - Filter Pack 2 Inch O.D. SCH 40 PVC Screen C 010 inch 210 9 -Factory Slotted . SS (split spoon) HS (hollow stern ouger)

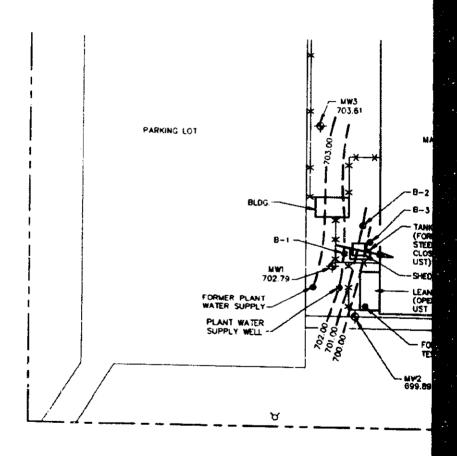
OBSERVATIONS Date 9/18/92 [10/20/63] 5/25/94 [1/6/94 WATER LEVELS 11, 1450 Static Water Level Symbol + inne

SOIL BORING LOG & MONITORING WELL CONSTRUCTION DIAGRAM Boring/Well # Focility 500 E. 59th ST. Facility Nome MARLEY PUMP COMPANY DAVENPORT, IOWA MW-4 Address Boring Depth (Feet) x Digmeter (Inches) Drilling Method HOLLOW STEM AUGER .95 . 6 25 Well Contractor TERRACCH CONSULTANTS D. STORY Logged by METCALF & EDDY Redistration # 10 40278 Dote & 10/19/93 Date & 10/19/93 | Ground Surface 715 11" Lust Time Stort 1340 Time End 1505 Elevation (ASL) Number 8LTS84 ?eotr Weil Construction PID /FID Blow Rock Fermations, Sell. en Fest Detoils Count Color and Classifications Reading Observations (moisture, etc.) - Tap of Casing (TOC) Podiocr --- Concrete Collar (2 ft ± 2 ft) 00.4 Ground Surface 5 ft long Stem Protective Cover Coment /Bentenite (53) Crout 2 inch U.D. SCH 40 PVC Riner 50 " Plush Threaded Bentonite Pallets 70 ft 90 % Top of Screened Interval Borehole = 6.25 inches 0.0. 2 inch 0.D 0.010 inch machine Sigtled PVC - Filter Pock 19.5 11

55 (spit spoon) MS (hollow stem auger)

SENECA Environmental Services Inc.

Loc Job Sac	atton Dayangort low	1	Hole/Well No. BH1 Serehale diseator 7.5 Total Dopth of Hole 25.0 fast Dopth to Mater 20.0 Date Completed 3/18/82		
-0		-	-	OL.	Gross - Topset1
-5				a a	Silty Clay, brown, no ador
-6			ğ		Bilty Clay, Slight oder, dark gray
-a			I	II.	Clayer Silt, light gray, ne eder
-10					
-12					Clayer Silt. light brown with fine grains of sand, so oder, does
-14			ł		
-16					
-18	_				Silty Clay, durk gray, embedded with fine to medium grained soud, no oder, domp
-50	Ţ			a	Clay, gray-gram, ust, ng adar
-52		-			
-24				α	
-26					Total Dupth = 25.6 Feet Sul Sample = 5-6-04, 5-7-044
-28					8-14-841 Mater Semple - 18-841



EAST 59th STREET



LEGEND

PAD IER 500 gal. GASOLINE ED IN PLACE

NUFACTURING BUILDING

ATONG
INTERM

MER
T WELL

OFFICE BUILDING

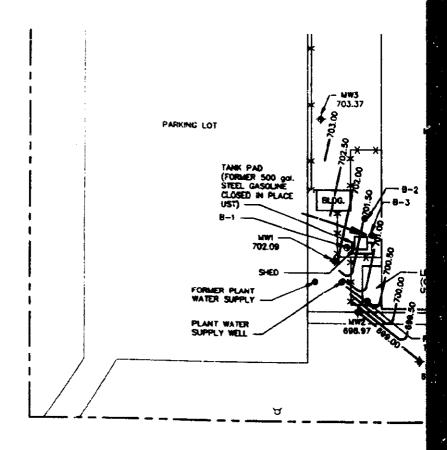
NOTES: ELEVATIONS WERE MEASURED AGAINST MEAN SEA LEVEL.

GROUNDWATER ELEVATION DATA COLLECTED ON OCTOBER 16, 1992.

GROUNDWATER FLOW DIRECTION - EAST - SOUTHEAST

GROUNDWATER CONTOUR MAP

The Mariey Pump Company 500 E. 59th Street Davenport, lowa



EAST 59th STREET





LEGEND

성 = FIRE HYDRANT

PLINE - MONITORING WELL

703.37 - GROUNDWATER ELEVATION

SOIL BORING

● ₩ELL

- APPARENT GROUNDWATER
FLOW DIRECTION

AH TO PERATING IT SYSTEM)

ANUFACTURING BUILDING

ORMER EST WELL OFFICE BUILDING M4-88.95 NOTES:

MWI, MWZ, & MW3 WERE USED TO DETERMINE HYDRAULIC CONDUCTIVITY.

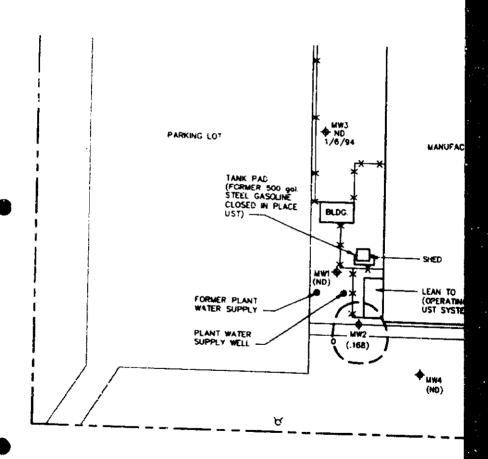
ELEVATIONS WERE MEASURED AGAINST MEAN SEA LEVEL

GROUNDWATER ELEVATION DATA COLLECTED ON OCTOBER 20, 1995.

GROUNDWATER FLOW DIRECTION - EAST - SOUTHEAST

GROUNDWATER CONTOUR MAP

The Morley Pump Company 500 E. 59th Street Davenport, Iowa



man e<mark>s</mark>a cue

EAST 59th STREET



0 25 50 100 SCALE IN FEET

LEGEND



------ - FENCE

FIRE HYDRANT

MW3 = MONITORING WELL

● ≃ WELL ND ≃ NONE DETECTED

(.0079) - UNITS in mg/I

 ESTIMATED VALUE CONCENTRATION BELOW LABORATORY DETECTION LIMIT

NOTES:

- 1. FREE PRODUCT NOT PRESENT
- THIS MAP DEPICTS ONLY THOSE LEVELS THAT EXCEED THE IOWA STATE ACTION LEVEL FOR BENZENE - .005 mg/i A PLUME MAP WAS INTERPOLATED FOR BENZENE.
- 3. DATA COLLECTED ON 10/20/93
 - L MW-3 RE-SAMPLED ON 1/6/94
- 5. GROUNDWATER SAMPLE COLLECTED FROM MW-3 ON 1/6/94, INDICATED THAT BENZENE LEVELS FOR MW-3 COLLECTED ON 10/20/93 WAS NOT REPRESENTATIVE OF THE GROUND-WATER AT THE WELL'S WORTY, NOW, DATA COLLECTED ON 10/1/92 AND 1/6/94 INDICATES THAT THE BENZENE IS NOT-DETECTED FOR THE WELL.

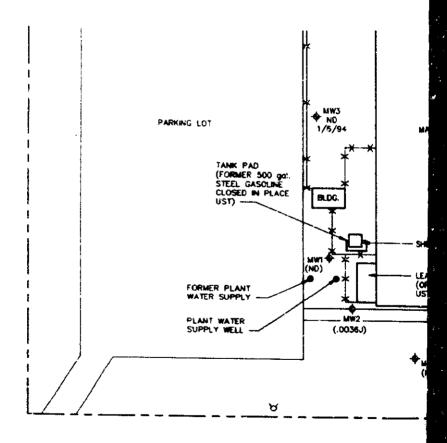
BENZENE GROUNDWATER CONTAMINATION

PLUME MAP

The Marley Pump Company 500 E. 59th Street Dovenport, Jowa

URING BUILDING

OFFICE BUILDING



EAST 59th STREET



25 50 100 SCALE IN FEET

LEGEND



------- - FENCE

FIRE HYCRANT

MANY - MONITORING WELL

WELL

NO - NONE DETECTED

(.0029) = UNITS IN mg/I

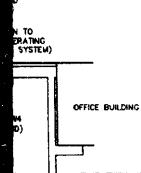
 ESTIMATED VALUE CONCENTRATION BELOW LABORATORY DETECTION LIMIT

NOTES:

- 1. FREE PRODUCT NOT PRESENT
- ETHYL BENZENE CONCENTRATIONS DID NOT EXCEED THE IOWA STATE ACTION LEVEL OF 12.0 mg/l. OR THE LABORATORY DETECTION LIMIT. THUS, A PLUME MAP COULD NOT BE INTERPOLATED.
- 3. DATA COLLECTED ON 10/20/93
- 4. MW-3 RE-SAMPLED ON 1/6/94

ETHYL BENZENE GROUNDWATER CONTAMINATION PLUME MAP

The Marley Pump Company 500 E. 59th Street Davenport, Iowa



NUFACTURING BUILDING



LEGENO

TRANSITIONAL ZONE
AREA. "O" BCUHDARY

PROPERTY LINE

FENCE

FIRE HYDRANT

MW3 = MONITORING WELL

ND = NONE DETECTED

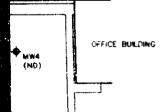
(.0258) = UNITS IN mg/l

ESTIMATED VALUE
CONCENTRATION BELOW
LABORATORY DETECTION
LIMIT

9#0

LEAN TO (OPERATING UST SYSTEM)

MANUFACTURING -BUILDING

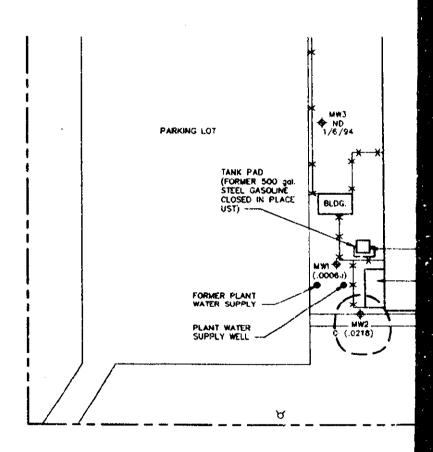


NOTES:

- 1. FREE PRODUCT NOT PRESENT
- TOLUENE LEVELS DID NOT EXCEED THE IGWA STATE ACTION LEVEL OF 2.42 mg/t. THUS, A CONTOUR MAP WAS INTERPOLATED.
- 3. DATA COLLECTED ON 10/20/93
- 4. MW-3 RE-SAMPLED ON 1/6/94

TOLUENE GROUNDWATER CONTAMINATION PLUME MAP

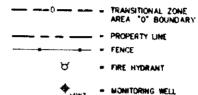
The Marley Pump Company 500 E 59th Street Davemport, lowe



EAST 59th STREET



LEGEND



● = METT

ND = NONE DETECTED

(.0061) = LINITS IN mg/1

- ESTIMATED VALUE
CONCENTRATION BELOW
LABORATORY DETECTION
LIMIT

NOTES:

- 1 FREE PRODUCT NOT PRESENT
- 2 XYLENE CONCENTRATIONS DID NOT EXCEED THE IOWA STATE ACTION LEVEL OF .7 mg/l. THUS, A PLUME MAP WAS INTERPOLATED.
- 3 DATA COLLECTED ON 10/20/93
- 4 MW-3 RE-SAMPLED ON 1/6/94

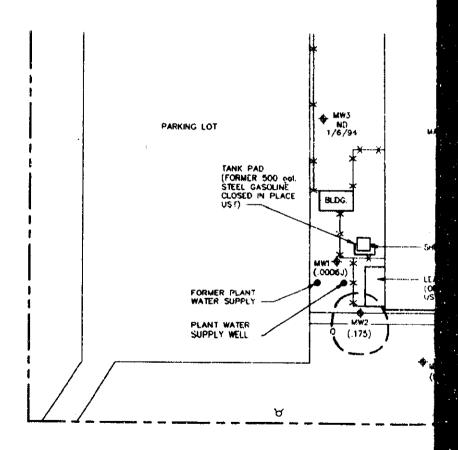
XYLENE GROUNDWATER CONTAMINATION PLUME MAP

The Morley Pump Company 500 E. 59th Street Davenport, lows

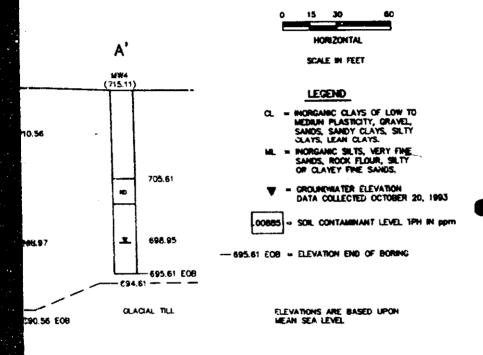
N TO
ERATING
SYSTEM)

OFFICE BUILDING

NUFACTURING BUILDING

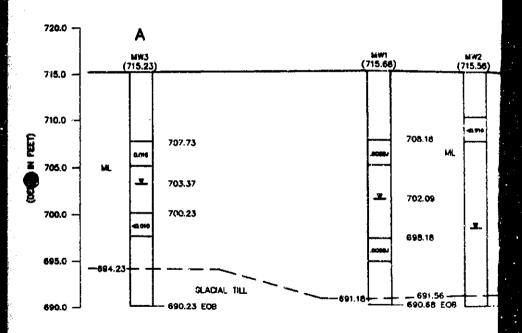


EAST 59th STREET



HYDROGEOLOGICAL CROSS SECTION

The Martey Pump Company 500 E. 58th Street Davonpart, Jowa



APPENDIX VIII RELEPTOR SURVEY MAP NARRATIVE

Surface Water Body Survey

After evaluating the U.S.G.S. 7.5 minute quadrangle and conducting a site survey, surface water bodies such as streams, lakes, and/or ponds are not located within 1,000 feet of the designated petroleum impacted area. The closest surface water body, Goose Creek, is greater than 1,000 feet from the impacted area. Furthermore, at an average rate of K=2.61 m/year, it would take over 100 years to reach Goose Creek.

Given the distance of the surface water body from the impacted area and the hydraulic conductivity baildown tests conducted on all three monitoring webs (MW-1: 0.00674 m/day, MW-2: 0.00804 m/day, and MW-3: .00883 m/day), the impacted area is believed to be very localized. Therefore, it is not anticipated that any surface water body will be affected. Furthermore, it is not anticipated that any surface water body sampling will be conducted.

Conduit Survey

Seneca Environmental Services (April 1992) had stated in their environmental report that a large metal pipe ran through the new UST tank pit excavation. This netal pipe ran from the water well, located approximately 20-feet west of the tank pit excavation, toward the manufacturing building (east). Seneca stated that the pipe is buried approximately two-feet below the surface and is set directly in the clay soils. Sand backfill does not exist around the metal pipe. The pipe is situated at a level above the midline of the proposed USTs. Soneca bad indicated that is was not likely that this pipe will act as a conduit for any hydrocarbon migration if a leak occurred in one of the underground storage tanks. The tanks are made of double-walled construction.

A four-inch diameter steel/plassic natural gas main (60 lbs) is buried approximately four feet below grade and runs into a natural gas main located on the south side of 59th Street. This pipe runs in a north-south direction. The buried line is located directly west of the new UST testing facility's above ground piping and the closed-in-place UST. The distance the matural gas line is from the closed-in-place UST cannot be discerned because the Marley Pump maps do not state such information. Two natural gas lines, a 16-inch steel (400 lbs) and an eight-inch plastic (60 lbs), are located approximately 420 feet north of the closed-in-place UST. The backfull for this buriest pipeline is gravel and native soil.

A six-inch diameter cast iron water main is buried approximately 5 feet below grade and runs north-south. This buried line is located west of the steel gas main and directly south of the closed-in-place UST. This water main connects to a fire hydrent located east of the UST. The backfill for this line is gravel and native soil.

A ten-inch diameter concrete roof drain (storm sewer) is buried two-feet below grade and runs north-south and east-west. The east-west extension of this line intersects the new underground

storage facility between tanks 2 and 3. The north/south extension of the storm newer is located directly east of Tanks 2 and 3. These drain extension are confined to the new UST testing area. The backfill is anticipated to be gravel and native soil.

A storm sewer clean-out is located at the southwest corner of the testing area. A draining trough is located at the southern end of the testing area. The depth and construction of this trough are unknown.

A buried telephone cable is located west of the facility and runs northwest-southeast and east-west. The depth at which this cable is buried is approximately 30 - 36 inches below grade. The backfill for this cable is native soil.

Several electric lines are buried on the property or near the property boundary. A 69,000 volt electric line in buried approximately 4 feet deep and is located on the north side of the property boundary. This line runs into the east-west. Additional electric lines run into the west side of the property toward the process building. Each line carries approximately 13,000 volts. The backfill is native soil.

A sewer (clay/concrete) line is located on the north side of 59th street and is buried approximately 8 feet below grade. Gravel and native soil are used as backfull.

The depth at which all the aforementioned lines are buried are not affected by fluctuating groundwater levels. The groundwater at this site ranges from approximately 11 feet below grade to 18 feet below grade.

A PID and CGI survey was conducted in an accessible area - the manhole for the pumphouse located in the southwest corner of the site. The PID and CGI survey did not detect any noticeable vapors. Therefore, vapors were not present. Survey of other utilities were not conducted because they were inamessible. Open trenches or excavation were not present to gather vapor survey data.

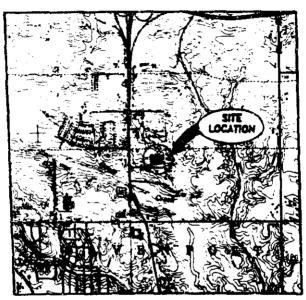
The utilities, at their maximum depth, are approximately 8 feet below grade. The groundwater level at the site ranges from 11 feet (MW-3) to 18 feet (MW-2 and MW-4). Since the utility trenches are located above the water table, the utility trenches will not act as a conduit to the subsurface.

Laboratory analysis for soil samples form on-site borings did not exceed IDNR's regulatory action level. This has been evident from the soil samples collected from boring drilled near utilities: B-1, B-2, B-3, MW-1, MW-2, and MW-4. Based upon the analytical data, soil type, and groundwater levels, it is unlikely that the utilities are impaired or affected.

Conduit Table

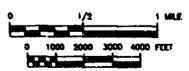
Conduit/ Confined Space	Rackfiti Material	Slope of Trench	Depth of Treach	Groundwater Level
Natural Gas	Gravel Native	None	42*	11 - 18"
Water	Gravei Native	None.Forced Main	60"	11 - 18"
Roof Drain (Storm Sewer)	Gravel Native	Not Avail.	24"	11 - 18"
Storm Sewer Clean Out	Unknown	Not Avail.	Unknown	i i - 1 2 "
Telephone Cable	Native	None	30-36*	11 - 18.
Electric	Native	None	42*	11 - 18"
Sewer	Gravel Native	0.4	96"	11 - 18'
Pumphouse	Unknown	Not Avail.	Approx. 96*	11 - 18"

Trench Depths are approximate and are based on discussions with representatives from the appropriate activity.



SOURCE: U.S.G.S. DAVENPORT EAST, IOWA - ILL. (1975)

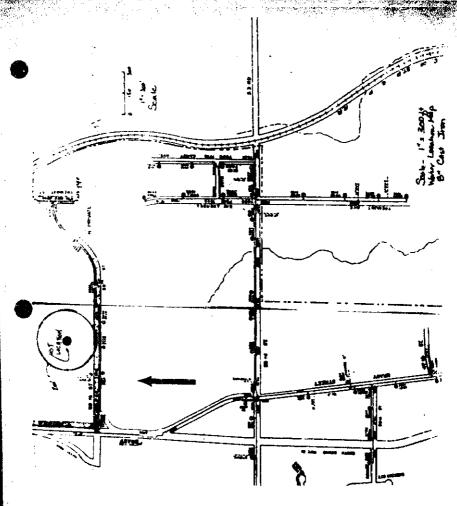
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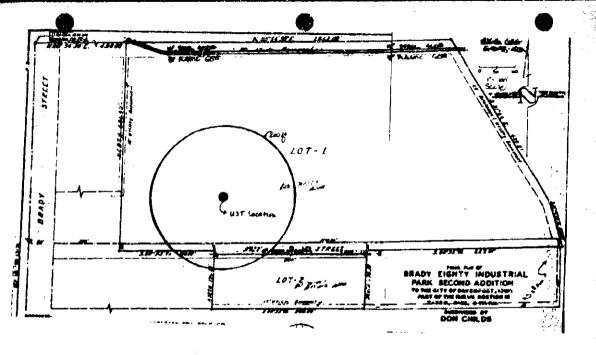
RECEPTOR SURVEY MAP SURFACE WATER BODY SURVEY

The Marley Pump Company 500 E. 59th Street Davenport, towa

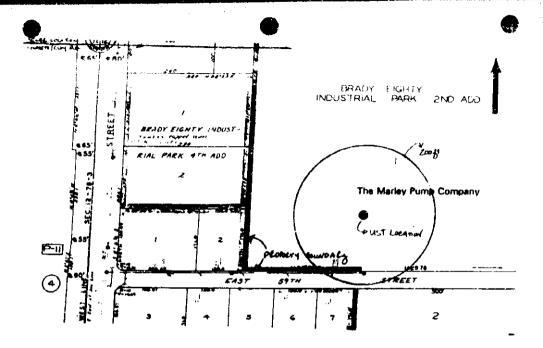
METCALF & EDDY



The Merley Pump Company 500 E. 59th Street Dovenport, Jown (Water - Cast Ivon)

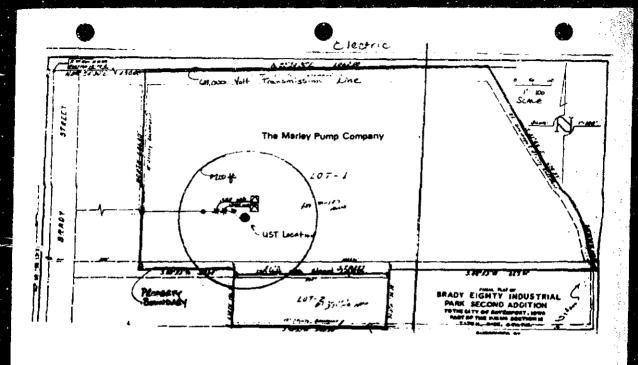


The Marley Pump Company 500 E. 59th Street Devemport, lowa (Natural Gas - Steel/Plastic)

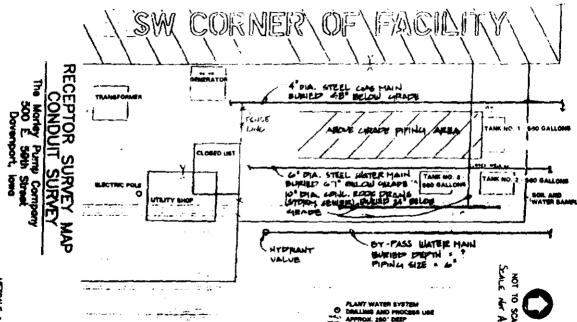


The Marley Pump Company 500 E. 59th Street Devenport, Iowa (Sewor - Ciny/Concrete Piping)





The Marley Pump Company 500 E. 59th Street Devenport, lows (Electric)



TOALS AS EDOY

-

SCALE OF PLET STORAGE APEA LEGENO STORAGE MED 200 4 900X ANEA PARE (STERNING UST OFFICE BUILDING 50 TH STREET RECEPTOR SURVEY MAF GROUNDWATER WATER WELL SURVEY

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APPENDIX VIII GROUNDWATER WELL SURVEY AND GROUNDWATER BARRIERS SURVEY

Groundwater Well Survey

Three deep wells exist on-site: former plant water supply well, plant water supply well, and a former test well. Please refer to the "Overall Site Plan Map" for further details.

- Former plant water supply well Well logs are not available for this water supply well. This well used to supply water to the plant for its operations. However, it is currently not in service. This well is not plugged. The depth of this well is approximately 240 feet below grade. This well is located approximately 20 feet west of the testing facility lean-to.
- Water supply well Well logs are not available for this water supply well. This well currently supplies water to the plant for all purposes: industrial and drinking. The depth of this well is approximately 240 feet below grade. This well is located approximately 5-feet west from the new testing facility lean-to.
- Test well A 6-inch diameter, 200-foot deep test well was drilled on the facility property in 1979. The well was used to test Marley Pump Company's jet pumps. This well is located in the new UST testing facility and is not closed.

The owner of all three wells is the Marley Pump Company located at 500 East 59th Street, Davenport, Iowa.

There are no off-site wells within 1,000 feet of the UST.

Groundwater Barriers Survey

Potential Groundwater Barriers:

Parking Lots: Located 40 feet west of the testing facility lean-to, 650 feet east of the testing facility lean-to, and approximately 180 feet south of the testing facility lean-to.

Building Foundation: The building foundation for this facility is approximately 3.5 feet below grade and is located east of the UST. This does not pose a barrier for groundwater because groundwater, as measured in the four groundwater mendioring wells, ranges from approximately 11 feet to 18 feet below grade.

UST Testing Facility: The depth of the sesting facility is approximately 7-feet below grade. This does not pose as a groundwater barrier problem because groundwater levels, as measured in the four monitoring wells, ranged from 11 feet below grade to 18 feet below grade.

Buried Conduit: The depth of the conduit varies form 2'-8'. Many utilities are located in the area the UST. As previously stated, groundwater fevels range from 11'-18' below grade. Therefore, the conduits do not act as barriers to the groundwater.

East 59th Street: This street is located approximately 130 feet south of the UST and does not pose as a groundwater barrier for the impacted area.

The harriers to groundwater are shallower (2' - 8') than the depth to groundwater (11' - 18'). Therefore, these barriers may influence the way water infiltrates to the groundwater, but, they will not impede the groundwater flow direction.

SOIL ANALYTICAL DATA - METCALF & EDDY, INC.

MW 1, 7.51 - 101	TPH - 8 8 J UG/KG
M(%), 17.5° - 20	TPH - 6 B 3 UG/KG
MW-2, 5' - 7.5'	TPH - ND
MW 3, 7.51 - 101	TPH - 16 G UG/KG
MW 3, 15'-17.5'	TPH - ND
MW-3, 151-17-51	TPH - ND

(NAMPLES COLLECTED ON SHOPE)

SOIL ANALYTICAL DATA - METCALF & EDDY INC

B I, 41-51.	B-1, 4'-6',	B-1, 4'-6',	B-1, 4'-6',	B-1, 4'-6',
Benzene - ND	Toluene - ND	Ethylbenzene - ND	Xylones - ND	T9H - 13.8 ug/kg
B-2, 6' - 8',	B-2, 6' - 8'.	D-2, 4' - 8',	B-2, 6' - 8',	8-2, 6' -8',
Benzess - ND	Totume - ND	Ethylboxzone - ND	Kylmas - ND	TML - ND
B-3, 41-61,	B-3, 6' - 8'.	B-3, 4' - 8',	B-3, 6' - 8',	B-2, 6'-4',
Benzene - ND	Toluene - 0 6J	Ethylbonzone - ND	Xylense - ND	TPH: - 13 ug/kg
MW-4, 9.5" - 11-5"	MW-4, 9 5' - 11 5'	MW-4, 9.5' - 11.5'	MW-4, 9 5' - 11 5'	MW-4, 9.5" - 11.5"
Benzene - ND	Toluene - ND	Ethylbourene - ND	Xylmes - HD	TBH - ND

BAMPLES COLLECTED ON OCTOBER 18, 1993)

BOIL ANALYTICAL DATA - SENECA ENVIRONMENTAL SERVICES

BH-1 BENZENE -	BH-I, ETH YLBENZENE -	BH-1, TOLUENE -	BH-I, XYLENES - < 0.5	BH-3. TPH - <18
< 0.5 UG/G	<0.5 UG/G	<05 UG/G	UG/O	UG/G
WALLES OF THE PARTY.	CATANDA PAR S. A.D.			

WATER ANALYTICAL DATA - METCALF & EDDY, INC.

MW-1, BENZENE /	MW-7 ETHYLBENZENE -	MW-1, TOLUENE	MW-I. XYLENES -	MW-1, 77H - 18 5
ND UG1.	ND UG/L	ND UGAL	ND UG/L	UG/L
MW-1, BENZENE -	MW-2, ETHYLBENZENE -	MW-2, TOLUENE -	MW-2, XYLENES -	MW-2, TPH - 2540
741 UG/L	322 UG/L	42.0 UG/L	89.6 UGAL	UG/L
MW-3. BENZENE -	MW-3, ETHYLBENZENE -	MW-3, TOLUENE -	MW-3, XYLENES -	MW-3, TPH - ND
ND UG/L	ND UG/L		2.8 J UG/L	UG-L
MW 3D BENZENE	MW-3, ETHYLBENZENE -	MW-3D, TOLUENE -	MW-3D, XYLENES -	MW-3, TPH - ND
ND UG/L	ND UG/L	25 1 UOVL	ND UG/L	UG/1.
RINSATE, BENZENE - NO UGAL	RINSATE. ETHYLBENZENE NO UG/L	RINSATE, TOLUENE - ND UGA.	RINSATE, XYLENES • 9 5 J UGAL	RINSATE, TIPH - ND UG/L

(SASISTES CONTENTED ON TOMPS)

WATER ANALYTICAL DATA - METCALF & EDDY, INC.

MW-L BENZENS -	MW-1, ETHYLBENZENE-	MW-1, TOLUZNE -	MW-1, XYLENES -	MW-1, TPH - ND
NO UGAL	ND UG/L	0 & UG/L	0.6J UG/L	UGIL
MW-2, BENZENE -	MW-2, ETHYLBENZENE -	MW-1, TOLUENE -	I.FW-2, KYLENES -	MW-2, TPH - 995
IGE UGAL	3 & UGAL	21 F UG/L	175 UG/L	UGAL
NW-3, BENZENE -	MW-1, STHYLBENZENE -	MW-3, TOLUENE -	MW-3, XYLENES -	MW-3, TPH - 177
7 9 UC/L	2 9 UG/L	25 & UCAL	6.1 UG/L	UG/L
MW-4, BEXZENE -	MW-4. ETHYLBENZENE-	MW4, TOLUENE -	MW4, XYLENES -	MOW-4, TPH - ND
ND HG/L	ND UG/L	ND UG/L	ND UG/L	UGAL
MW-4D, BENZENE -	MW-4D, ETHYLBENZENE	MW4D, TOLUENE	MW-4D, XYLENES -	MW-4D, TIHI - ND
ND UG/L	- ND UG/L	NC UG/L	ND	

STAMPERS COLLECTED ON OCTOBER 20, 1985)

WATER ANALYTICAL DATA - SENECA ENVIRONMENTAL SERVICES

BU) BENZEMB	BH-1, ETHYLBENZENE	BM 1 70V 198NB . 6 76	BH-I, XYLENES - 0.25	Marie 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
BU-1 BCAFFAC.	MULTICIPATION CONTINUE.	B11-1, 10COM6-4:11	BYC', A'LENES' 9.43	mad. (* 1844 (2°)
8 62 MQ/L	6 25 MG/L	MGA.	MG/L	MG/L I
			1	

WATER ANALYTICAL - METCALF & EDDY, INC., JAMBARY 6, 1994 RE-SAMPLING UP MW-3

BENZENE -	ETHYLBENZENE	TOI.UENE -	XYUENES -	TTL HYDROCARDONS
< 10 UG/L	· < 10 UGAL	IS UGAL	< 10 UG/L	- 12 MG/L

WATER ANALYTICAL - MARLEY PUMP COMPANY, MAY 10, 1994 - SAMPLING OF ON SITE WELL FOR VOLATILE DIGANICS

e plante de l'appare de l'appare de la company de la compa

TRICHLOROETHYLENE	< 0.001 PPM
TRICHLOROETHANE	< 0.00L PPM

SENECA ENVIRONMENTAL SERVICES, INC.
SOIL AND GROUNDWATER LABORATORY ANALYTICAL DATA



Tel: (319) 277-2401 Fax: (319) 277-2426

ANALYTICAL REPORT

Ms. Reather Morton-Davis SENECA ENVIRONMENTAL SERV. 93/30/1992

10g/g

p/pu

29/9

5113 Tramont Avenue Daverport, IA 52807

Sample Ro.: 163005 Job Number: 92,2095

Sample Description:

Date Taken:

Toluene

Xylenes, Total

Total Hydrocarbons

S-7 BR-1 SOIL

03/13/1992

Karley Pump

Date Received: 03/19/1992 Parapeter Result Units Data Anglysad/Analyst Total Extractable Hydrocarbons <20. 94/4 03/27/1992 hlk (SUCCUOANCE) KETS - STITATOR Benzene <0.5 uq/q 03/24/1992 mkk Ethylbenzene <0.5 ນຕົ/ໝ 03/24/1992

<0.5

<0.5

<10.

Sample introduction performed in reference to EPA Method 5030 (purge & trap). Analysis performed in reference to EPA Method 5015 for volatile organics using flame ionisation detection. (Some Method 0A-1, Nevision 7/01/91).

Hethod Detection Limits: Senzen: <0.5 ug/g; Toluene <0.5 ug/g; Kylenes, Total <0.5 ug/g; Total Sydrocarbone <10. ug/g; Ethyl Benzene <0.5 wg/g.

Extractable Hydrocarbons are extracted in accordance with EFA Method 3550 (sonication extraction). Analysis is performed in reference to EFA Method 8100 using flame ionization detection. [Iova Method 0A-2, Revision 7/01/91].Nethod Dataction Limit <10. ug/g

03/24/1992

03/24/1992

03/24/2992 mkt

BER





Tel: (319) 277-3491 Fax: (319) 277-3428

ANALYTICAL REPORT

Ms. Heather Morton-Davis SENECA ENVIRONMENTAL SERV. 5113 Tremont Avenue Davemport, IA 52807

03/30/1992

Sample No.: 163006 Job Mumber: 92,2095

Sample Description: W-Bdl

WATER

Marley Pump

Date Received: 03/19/1992 Date Taken: 03/18/1592 Result Units Date Analyzed/Analyst VOLATILES - BTEX (WATER) Benzene 0.61 mq/L 03/20/1992 ake 0.25 mq/L 03/20/1992 ake Ethylbenzene 0.29 mq/L 03/20/1992 ake Toluene Xylenes, Total 0.25 mq/L 03/20/1992 ake Total Hydrocarbons 3.7 mg/L 03/20/1992 ake

Eample introduction performed in reference to EPA Nethod 5030 (purge and trap). Analysis performed in reference to EPA Nethod 8015 for volatile organics using flame ionization detection. (Nove Method OA-1, Revision 7/01/91).

Method Detection Limits: Benzene <0.002 mg/L: Toluene <0.002 mg/L: Kylenes, Total <0.802 mg/L; Rthyl Densene <0.002 mg/L Total Hydrocarbons <2.10 mg/L.

Project Manage:

METCALF & EDDY, INC
SOIL AND GROUNDWATER LABORATORY ANALYTICAL DATA
ROUND 1 - SEPTEMBER/OCTOBER 1992

1700 W. Albany + Brislen Arrow, Okiohoma 74012 - 918-251-2858 + FAX: 918-251-2599

CLIENT: METCALE & EDDY 1 PIERCE PLAZA, SUITE 1500 WEST ITASCA ILL 60143 ATTN: DENNIS STOREY

REPORT: 11079.0171

DATE: 09-25-92

SHAMPLE MATERIAL SHILL H. # 11 - 3, 1 THIS REFERENCE: CHAIL THIE THAT FIRE GARAGES THE RESIDENCE OF SERVE to the server of the The martin was to the form of the WHIE 10: MW-1 7.5-

PARAMETER

DET. LIMIT

UNIT

RESULTS

TOTAL E RESEARCE FETFOLEUM HADELLAGEONS

SASOLINE

1.61.10

ug/Fc

a.s j

DA/OC SURROGATE RECOVERY

A -BROY TRUUDE GEENZENE

88%

NOT LETECTED ABOVE QUANTITATION LINET NI.

= COMPOUND FOUND IN BLANK AS WELL AS SAMPLE

* EST. MATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION

- UNABLE TO QUANTITHTE DUE TO MATRIX INTERFERENCE

1700 W. Albany - Broken Arrow. Oklahoma 74012 - 918-251-2858 - FAX: 918-251-2599

CLIENT: METCALS & EDBY
1 FIERCE PLAZA, SUITE 1500 MEST
17ASCA ILL 60143
ATTN: DENNIS STORES

REPORT: 11078.02TI

DATE: 09-25-92

Friend Mental 1. 1. 1.

MAIN MENTAL PROPERTY OF THE PROPERTY O

PARAMETER LIMIT

UNIT RESULTS

1074 P. F. St. HELE, FE1FOLE, M. H. THOCHEDONS

SMBLL Hot

10.0

ug/kg

6.8 J

DA/OC SURROGATE RECOVERY

A BH MORLUGACHENIENE

917.

NE - S NOT DETECTED ABOVE PRANTITATION LIMIT

- COMPOUND FOUND IN BEANT AS WELL AS SAMPLE

4 - 5 11 CIMATED VALUE: CONCENTRATION SELOW LIMIT OF QUANTITATION

* . SANELE TO DUANTITATE DUE TO MATRIX INTERFERENCE

1700 W. Albam. + Broken Arrow. Oxlahoma. 74012 + 918-251-2858 + FAX: 918-251-2599

CLIENT: METCALF & FDDY 1 PIERCE PLAZA, SUITE 1500 WEST ITASCA ILL 60143 ATTN: DENNIS STOREY

REPORT: 11078.03TI DATE: 09-25-92

Semile MATER : BOIL 14 1 # 15 E TE CHOI PEFFFERENCE OF A 1 A 1 944 F 1 + + + 1 to 1 to 1 to 1 STATE TO THE STATE FROME UT. CHMPLE IC: MK-1 5-0.5

PARAMETER	IMIT .	UNIT	RESULTS
TOTAL F HARAFLE RETAINED	MINDED AFFONS		
G480.1%	10-10	ug/kg	AIF.

QA/QC SURROGATE RECOVERY

A BACHOMINICORDERNIENE 97%

NO - - NOT DESECTED ABOVE COUNTRYATION LIMIT A CHARGINE FIUND IN BLANK AS WELL AS SAMPLE

8 TIMOTER AL E: CONCENTENTION BELOW LIMIT OF QUANTITATION A JUNE TO CLANTETHE DUE TO MATRIX INTERFERENCE

1700 W. Albany + Broken Arrms. Oklahoma 740/2 + 918-251-2858 + FAX: 918-251-2599

CLIENT: METCALF & EDDY

1 FIERCE PLAZA, SUITE 1500 MEST ITASEA ILL 60143

ATTN: DENNIS STOREY

REPORT: 11078.04TI

DATE: 09-25-92

WHELE HAPPINE STILL

Ta S # 1, 7⊕, 4 Markett Afterether

THE THAT ENGLY

International

AND THE STATE OF T

PARAMETER

DET. LIMIT

UNIT

RESULTS

TAYA, A FO ASSENDENCE M MACE SARBONE

GAS: ...IL

100

u**q**/≱g

16.5

QA/DC SURROGATE RECOVERY

A-PERMISELL DECREATEME

20%

TIMIL MOITATION DE SUBBA GETESTES DE MINIT

A COMPUTE FOUND IN BLANK HE WELL AS SAMPLE

* ESTIMATED VALUE: CONCENTRATION RELOW LIMIT OF QUANTITATION

* THELE TO QUANTITATE DUE TO MATRIX INTERFERENCE

1700 W. Albom. + Broken Arrow. Oklohoma 74012 + 918-251-2858 + FAX: 918-251-2599

CLIENT: METCALF & EDDY

I FIERCE PLAZA, SUITE 1500 BEST

IYASCA ILL 60143 ATTN: DENNIS STOREY REPORT: 11078.05TI

BATE: 09-25-92

PAMPLE MATERIAL SOIL

1460 * 11 *16.45

MERMOD REFERENCES CAMI SHITE SAMPLES:

. 67€ E. BW. FTE. 5 Serie Geleg. 1816

THE BUILD HARDER FUME CO.

PARAMETER

DET.

LIMIT

RESULTS

TOTAL FOR HANGE RETROLEUM HATFOCARSONS

SASSLINE

10.0

ug/rg

QA/QC_SURROGATE_HECOVERY

A FRIMORILLOR PRENDENE

78":

ND - NOT DETECTED APPLY BURNTITATION LIMIT

- COMPOUND FOUND IN BLANK AS WELL AS SAMPLE

- * ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF DUANTITATION

* SMARLE TO CHANTITATE DUE TO MATRIX INTERFERENCE

1700 W Alban: * Broken Arrow. Oliohoma 74012 * 918-251-2858 * FAX: 918-251-2599

CLIENT: METCALF & EDDY I PIERCE PLAZA, SUITE 1300 WEST ITASCA ILL 60143 ATTN: DENNIS STOREY

REPORT: 11078.04TI DATE: 09-25-92

IN MALE MATRIX : BOTE ALC # 11 //Burs METHOT REFERENCE: THATE GAMELES: 1-1- 47 1971 SIR MITTEE: 3-12991 1978 AVA STEE: 399 2794 ลิติขังชั่วโระ พณธยู่สูง สมูฟล์ เริ่ SWIFTER 15: MR- 10 14: 11 9

PARAMETER

i

DET. LIMIT

UNLT

RESULTS

TOTAL BURGHABLE FETFOLEUM HYDRIGARBONS

SASCLINE

20.00

ug/kg

NĐ

DAYOC SURROGATE RECOVERY

HI-BROMDELLURGERNZENE

91%

F NOT DETECTED ABOVE QUANTIFICATION LIMIT

- 1 MEDICAD FOUND IN BLANK AS WELL AS SAMPLE

A VETIMATED VALUE: CONCENTRATION BELOW LIMIT OF DUANTITATION

W MARGE TO DURNITITATE DUE TO MATERY INTERPERENCE

1700 W. Albany + Saule "C" + Broken Arrow, Ottlehoma 74012 + 918-251-2858 + FAY-018-251-2500

LABORATORY QUALITY CONTROL SEQUENCE

t SW846-8015 (MODIFIED) (IOWA METROD) EXECO

SEQUENCE DAYS : 39/22/92

IMATRUMENT ID. : 6

1112

LABORATORY BLANK

MATRIE MATRIX : Water SAMPLE ID. : BLANK SAMPLE AMOUNT : 5.0 ml AMALYSIS DATE : 09/22/92 RMALYSIS TIME : 09:28

: Water

ARTS NO. PILEMANE : BLANK

: 4092292\011F1101

DILUTION PACTOR: 1

CONTITATION LIMIT (ug/L) MADURE FOUND (ug/L)

GASOLINE

10.0

10.0 MD

SURBAGATE RECOVERY (4-BROMOFLOUROBENSEME) :

101 %

MATRIE SPIKE/MATRIE SPIKE DUPLICATE RESULTS

COMPOUND

SPIKE CONC. SHEPLE CONC. MATRIX SPIKE PROCEST
(uq/Kg) (uq/Eg) * CONC. (uq/Eg) * RECOVERY

GAROLINE

500.0

16.6

479.1

92.5 t

5819.04MD MATRIE SPIKE

DUPLICATE COMC. (mq/EQ) * RECOVERY

PHRCENT

RECOVERY PERCENT DIFFERENCE

GASOLINE

487.2

94.3

(1.7) *

DILUTION FACTORS NOT APPLIED TO THESE CONCENTRATIONS

5819.04 IS CLIENT SAMPLE 90:99-3 7.5-10

1700 W. Albam - Broken Arron. Oklahoma 74012 - \$18-251-2858 - FAX: \$13-251-2599

CLIENT: METEAUF & EDDY

1 PIERCE PLAZA, STUTE 1500 MEST

17ASCA, ILL. 60143

ATTN: DENISE STORY

REPORT: 11239.01BX

DATE: 10-21-92

SAMPLE MATRIX: MATER
SMLD # 11239.01
METHOD REFERENCE: 5M646-8020
DILUTION FACTOR: 1
DATE SAMPLED: 10-01-92
DATE SUBMITTED: 10-02-92
DATE AMALYZED: 10-06-92
PROJECT: MARLEY PUMP COMPANY
SAMPLE ID: MB-1

PARAMETER	QUANT. LINIT	UNGT	RESULTS
GAS CHECHATOGRAPHY			
BENZENE	1.0	ug/L	ND
TOLUENE	1.0	ue/L	MD
ETMYLBENZEHE	1.C	ug/L	ND
XYLENES	1.0	ug/L	ND

SA SEGUENCE NO. 38240 SA/SC SURROSATE PECOVERIES

4-BROMOFLUGROBENZENE (65-135%) 102%

E - ESTIMATED VALUE (ABOVE LINEAR RANGE)

ND = NOT DETECTED ABOVE QUANTITATION LIMIT

B - AMALYTE DETECTED IN BLANK AS WELL AS SAMPLE

. ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF DUANTITATION

* * SURROGATE RECOVERY OUTSIDE OF OC LIMITS ON ORIGINAL RUN AND RERUN.

SW = TEST METHODS FOR EVALUATING SOLID WASTE, EPA PUBLICATION #5W646, THIRD EDITION. NOVEMBER 1986

1700 W. Albans + Sroken Arrow, Oklahoma 74012 + 918-251-2858 + FAX: 918-251-2599

CLIENT: METCALE & EDDY

1 PIERCE PLAZA, SIUTE 1500 WEST

ITASCA, ILL. 60143

ATTN: DENISE STORY

REPORT: 1:239.0111

DATE: 10-21-92

SAMPLE MATRIX: MATER

SWLO # 11239.01

METHOD REFERENCE: DA-1

DICUTION FACTOR: 1

DATE SAMPLED: 10-01-92

DATE SUBMITTED: 10-02-92

DATE AMALYZED: 10-05-92 PROJECT: MARLEY PUMP COMPANY

SAMPLE ID. MW-1

GLIANT .

LIMIT

RESULTS

101AL PURGEABLE PETROLEUM HYDROCARBONS

BASOLINE

PARAMETER

10.0

ug/L

UNIT

18.5

SA/SC_SURROSATE_RECOVERY

4-BROMOFLUOROBENZENE

952

- # * SUREDGATE RECOVERY OUTSIDE OF GC LIMITS ON ORIGINAL RUN AND RERUN.
- ND . NOT DETECTED ABOVE QUANTITATION LINIT
- * COMPOUND FOUND IN BLANK AS WELL AS SAMPLE
- . ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF BUNNTITATION
- UNASLE TO QUANTITATE DUE TO MATRIX INTERFERENCE

17(6) W. Albany . Brokes Arron, Oklahoma 74012 . 918-251-2858 . FAX: 918-251-2599

CLIENT: METCALE & EDDY

1 PIERCE PLAZA, STUTE 1500 WEST ITASCA, ILL. 60143 ATTN: DENISE STORY REFORT: 11239.028X

DATE: 10-21-92

SAMPLE MATRIX: MATER

SWLD # 11239.07 METHOD REFERENCE: SW846-8020

DIEUTION FACTOR: 50
DATE SAMPLED: 10-01-92
DATE SUBMITTED: 10-02-92

DATE AMALYZED: 10-07-92 PROJECT: MARLEY PUMP COMPANY

SAMPLE 1D: MW-2

	QUANT.		
CARAMETER	LIMIT	<u> UNIT </u>	PERULTS
GAS CHROMATOGRAPHY			
BENZENE	50.0	ug/L	748
YOLUE ME	50.0	ug/L	42.0
ETHYLBENZENE	50.0	ug/L	322
XYLENES	50.0	un/L	A 78

GA SEQUENCE NO. 38241 GA/OC SURROGATE RECOVERIES

4-BROMOFLUOROBENZENE (65-135%) 106%

E . ESTIMATED VALUE (ANOVE LINEAR RANGE)

MD = MOT DETECTED ABOVE QUANTITATION LIBIT

B - ANALYTE DETECTED IN BLANK AS WELL AS SAMPLE

J . ESTIMATED VALUE: CONCENTRATION FELOW LIMIT OF QUANTITATION

" SURROGATE RECOVERY OUTSIDE OF BC LIBITS ON ORIGINAL RUN AND RERUN.

SW . TEST METHODS FOR EVALUATING SOLID MASTE, EPA PUBLICATION MSW846, THIRD EDITION, NOVEMBER 1986

1700 W Albany . Broken Arrow. Oklahoma 74012 . 918-251-2858 . FAX: 918-251-2599

CLIENT: ME(CALF & EDDY

1 FIERCE FLAZA, SILTE 1700 WEST
17ASCA, ILL. 60143

ATTH: DENISE STORY

REPORT: 11239.0271

DATE: 10-21-92

SAMPLE MATRIX: WATER
SALO 6 11239-02
METHOD REFERENCE: DA-1
FILUTION FACTOR: 10
DATE SAMPLED: 10-01-92
DATE SUBMITTED: 10-02-92
DATE ANALYZED: 10-07-92
FRDJECT: MARLET PUMP LOMPANY
SAMPLE ID: MB-2

PARAMETER LIMIT UNIT REGILTS

TOTAL PURGEARLE PETROLEUM HYDROCARBONS

CASOLINE 100.0 up/L

PA/DC PURROGATE RECOVERY

4-PROMOFLUGROBENZENE

972

2540.0

- * SURROGATE RECOVERY DUTSIDE OF OC LIMITS ON DRIBINAL RUN AND RERUM.
- NO HOT DETECTED ABOVE QUANTITATION LIMIT
 - P = COMPOUND FOUND IN BLANK AS WELL AS SAMPLE
 - 3 * ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION
 - * UNABLE TO QUANTITATE DUE TO MATRIX INTERFERENCE

1700 W. f.thony - Broken Arron, Oklahoma 74012 - 918-251-2858 - FAX: 918-251-2599

CLIEN': RETCALF & ESTY 1 PIERCE PLAZA, SIUTE 1500 MEST ITASCA, ILL. 60143 ATTNE DENISE STORY

REPORT: 11239.038X DATE: 10-21-92

SAMPLE MATRIKE WATER S#LD # 11229.03 METHOD REFERENCE: SM846-8020 TILUTION FACTOR: 5 DATE SAMPLED: 10-01-92 DATE SUBMITTED: 10-02-92 DATE ANALYZED: 10-08-92 PROJECT: MARLEY PUMP COMPANY SAMPLE ID: Mb-3

BAS CHROMATOGRAPHY	DUANT.	WGT	REBULTS
NEMZENE	5.0	ug/L	ND
TOLUENE	5.0	ug/L	22.2
ETHYLBENZENE	5.0	ug/L	ND
KYLENES	5.0	ug/L	2.8 1

GA SEQUENCE NO: 39242 BA/SC SURROSATE RECOVERIES

4-BROMOFLUOROBENZENE (65-1352) 1162

- F * ESTIMATED VALUE (ARDVE LINEAR RANGE)
- NO . NOT DETECTED ABOVE QUANTITATION LIMIT
- B A ANALYTE DETECTED IN BLANK AS WELL AB SAMPLE
- 3 ESTIMATED VALUE: CONCENTRATION BELOW LIBIT OF BUANTITATION
- # * SURROGATE RECOVERY OUTSIDE OF DC LIMITS ON ORIGINAL RUN AND RERUN.
- SW " TEST METHODS FOR EVALUATING SOLID WASTE, EPA PUBLICATION MEMB46, THIRD EDITION. NOVEMBER 1986

1700 W. Albany + Broken Arrow, Oklahoma 74012 + 918-251-2858 + FAX: 918-251-2509

CLIENT: METCALF & EDDY 1 PIERCE PLAZA, SIUTE 1500 WEST ITASCA, ILL. 60143 ATTN: DENISE STORY

REPDAT: 11239.0371 PATE: 10-21-92

SAMPLE MATRIX: MATER SWL0 # 11239.03 METHOD REFERENCE: DA-1 DILUTION FACTOR: 1 DATE SARFLED: 10-01-92 DATE SUPPLITTED: 10-02-92 DATE ANALYZED: 10-05-92 PROJECT: MARLEY PUMP COMPANY SAMPLE 10: MW-3

PARAMETER

BUMAIT.

LIMI

UNIT

TOTAL PURGEOBLE PETROLEUM HYDROCARBONS

GASGLINE

10.0

ug/L

MOTE: THE ELUTION PATTERN OF THIS SAMPLE IS NOT CONSISTANT WITH GASOLINE

SA/SC BURROSATE RECOVERY

4-BRONOFLUOROSENZENE

95%

- # = SURROGATE RECOVERY OUTSIDE OF GC LIMITS ON ORIGINAL RUN AND RERUN. HD . MOT DETECTED ABOVE QUANTITATION LIMIT
- * COMPOUND FOUND IN BLANK AS WELL AS SAMPLE
- * ESTIMATED VALUE: CONCENTRATION BELOW LIBIT OF QUANTITATION
 - . UNABLE TO QUANTITATE DUE TO MATRIX INTERFERENCE

1700 W. Albany . Broken Arron, Oklahoma 74012 . 918-251-2858 . FAX: 918-251-2599

CLIENT: METCALF & EDDY 1 PIERCE PLAZA, SIUTE 1500 MES! ITASCA, ILL. 60143 ATTN: DENISE STORY

REPORT: 11239.048X PATE: 10-21-92

SAMPLE MATRIX: MATER SWLD # 11239.04 METHOD REFERENCE: SW846-8020 BILUTION FACTOR: 5 DATE SAMPLED: 10-01-92 DATE SURMITTED: 10-02-92 DATE ANALYZED: 10-08-92 PROJECTA MARLET PUMP COMPANY SAMPLE ID: MM-ID

PARAMETER	QUANT. LIMIT	UNIT	REBULTS
GAS CHROMATOGRAPHY BENZENE YOLUENE ETHYLRENZENE XYLENES	5.0 5.0 5.0 5.0	ug/L ug/L ug/L ug/L	ND 25.1 NO

M SESUENCE HB: 38242 BA/OC BURROGATE RECOVERIES

4-BROMOFLUGROBENZEME (65-135%)

- E . ESTIMATED VALUE (AROVE LINEAR RANGE)
- HD = MOT DETECTED ADOVE QUANTITATION LIBIT
- B . AMALYTE DETECTED IN BLANK AS WELL AS SAMPLE
- 3 ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION
- # " SURROGATE RECOVERY DUTSIDE OF OC LIMITS ON DRIGINAL RUM AND RERUM. SM = TEST METHODS FOR EVALUATING SOLID MASTE, EPA PUBLICATION #SMB46, THIRD EDITION. NOVEMBER 1986

1700 W Albans - Broken Arrow, Okiehoma 74012 - 918-251-2858 - FAX: 918-251-2599

CLIENT: METCALF & EDDY

1 FIERCE PLAZA, STUTE 1500 WEST

STASCA, ILL. 60143 ATTN: DENISE STORY REPORT: 11239.04TI

DATE: 10-21-92

SAMPLE MATKIN: WATER
SWICH M 11239.04
METHOD REFERENCE: 0A-1
DILUTION FACTOR: 1
DATE SAMPLED: 10-01-92
DATE SUMMITTED: 10-02-92
DATE ANALYZED: 10-05-92
FROJECT: PARLEY PUPP COMPANY
SAMPLE ID: MW-DD

PARAMETER

OLIMANT .

LIMIT

UNIT

RESULTS.

JOTAL PURGEABLE PETROLEUM MYDROCARBONS

GASOLINE

10.0

ug/L

.

NOTE: THE ELUTION FATTERN OF THIS SAMPLE IS NOT CONSISTANT WITH GASOLINE

PAYOC PURROBATE PECOVERY

4-BROMOFLUOROBENZENE

1061

- # # SUPPRISATE RECOVERY DUTSIDE OF DC LIMITS ON ORIGINAL RUN AND RERUN.
- MP . NOT DEFECTED ABOVE QUANTITATION LIMIT
- B . . COMFOUND FOUND IN BLANK AS WELL AS SAMPLE
- J = ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION
 - . UNABLE TO QUANTITATE DUE TO MATRIX INTERFERENCE

1700 W. Albany + Broken Arrow, Oklahoma 74012 + 918-251-2858 + FAX 918-251-2599

CUZENTE HETCALF & EDBY

1 FIERCE PLAZA, SIUTE 1500 WEST

ITASCA, ILL. 60143 ATTN: DENISE STORY

The second of the second

REPORT: 11239.058X

DATE: 10-21-92

SAMPLE MATRIX: WATER

SWLO # 11239.05

METHOD REFERENCE: SW846-8020

DILUTION FACTOR: 1 DATE SAMPLED: 10

DATE SAMPLED: 10-01-92 DATE SUBMITTED: 10-02-92

DATE ANALYZED: 10-06-92

PROJECT: MARLEY PUMP COMPANY

SAMPLE 10: RINSATE

	BUANT.		
PARAMETER	LIMIT	<u>uu</u> y	RESULTS
GAS CHROMATOGRAPHY			
BENZENE	1.6	ug/L	ND
TOLUENE	1.0	ug/L	ND
ETHYLBENZENE	1.0	ug/L	MD
YVI FAFS	1.0	ue /1	0.5 J

MA SESUENCE NO: 38240 GA/GC SURROGATE RECOVERIES

4-BROMOFLUDROBENZENE (65-135%)

90%

E = ESTIMATED VALUE (AROVE LINEAR RANGE)

ND . NOT DETECTED ABOVE QUANTITATION LIMIT

B . ANALYTE DETECTED IN BLANK AS WELL AS SAMPLE

3 - ESTIMATED VALUE: CONCENTRATION RELOW LIMIT OF QUANTITATION

SURROGATE RECOVERY DUTSIDE OF OC LIMITS ON ORIGINAL RUN AND RERUN.

SW * TES: METHODS FOR EVALUATING SOLID MASTE, EPA PUBLICATION #8#844, THIRD EDITION, NOVEMBER 1994

1700 W. Albony - Broken Arrow, Oklohoma 74012 - 918-251-2858 - FAX: 918-251-2599

CLIENT: METCALF & EDDY
1 PIERCE PLAZA, SIUTE 1500 MEST
17ASCA, ILL. 60143
ATTM: DEMISE STORY

REPORT: 11239.0511

DATE: 10-21-92

SAMPLE MATRIX: WATER
SWLO R 11239.05
METHOD REFERENCE: CA-1
DILUTION FACTOR: 1
DATE SAMPLED: 10-01-92
DATE SUMMITTED: 10-02-92
DATE ANALYZED: 10-05-92
FROJECT: MARKEY PUMP COMPANY
SAMPLE ID: RINSAIE

PARAMETER LIMIT UNIT REBUTE

TOTAL PURGEABLE PETROLEUM HYDROCARSONS

GASOLINE

10.0

ua/L

MD

RA/RC SURROSATE RECOVERY

4-BROMOFLUDROBENZENE

862

- * SURROGATE RECOVERY OUTSIDE OF QC LIMITS ON ORIGINAL RUN AND RERUN.
- NO NOT DETECTED ABOVE QUANTITATION LIMIT
- B = COMPOUND FOUND IN BLANK AS WELL AS SAMPLE
- J ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION
- I UNABLE TO QUANTITATE DUE TO MATRIX INTERFERENCE

METCALF & EDDY, INC SOIL AND GROUNDWATER LABORATORY ANALYTICAL DAYA ROUND 2 - OCTOBER 1993



Cotober 27, 1973

Desine Story MITCALF AND MODES l Pierce Plans Maite 1400-W Iteace, IL. 66143

Project ID: Markey Pump Company

factored pirace find the analytical results for your semples received in ovy laboratory on October 21, 1993, for the above captioned project.

If, in your review, you should have any questions or require additional information, please call.

Sinceruly,

Project Officer

Biclorurus

1700 West ALEXEY & BROKEN ARROW, OK 74012-1421 + (\$18) 251-2556 + Fax (\$15) 251-2566

007 27 193 14129

918 251 8363

PACE, 9P2



1700 West Albury * Broken Arvow, Oktahoms 71012 * Office (918) 251-2858 * Pag (918) 253-2599

CLIENT: METCALF AND EDDIE

1 PIERCE PLAZA, STE 1400-W

ITASCA, IL, 60143

ATTW: DENISE STORY

REPORT: 15022.0132

DATE: 10-27-93

SAMPLE MATRIX: SOIL

SWLO # 16022.01

DATE SAMPLED: 10-19-93 DATE SUBMITTED: 10-21-93

DATE AMALYESD: 10-25-93 DILUTION FACTOR: 1.0

METHOD REFERENCE: SW846-8020

PROJECT: MARLEY PUMP CO.

SAMPLE ID: 8-1 4-6

PARAMETER	QUART.	如此是	250000
CAS CHRONATOGRAPHY			•
PERFERE	1.0	ug/Rg	10
Tolueni	1.0	ug/Kg	3/10
alualyshasing	1.0	ug/Eg	3/70
XYLENES	1.0	ug/Kg	MD

QA SECORNICE NO: 38102593 ON/OC BURNOSATE BECOVERIES

4-BROMOFIUOROREMEENE (65-135%)

MD - NOT DETECTED ABOVE QUANTITATION LIMIT

B - AMALYTE DETECTED IN BLANK AS WELL AS SAMPLE

J . ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUARTITATION

SURROGATE RECOVERY OUTSIDE OF OC LIMITS ON ORIGINAL RUN AND RERUN.

SW - TEST METBODS FOR EVALUATING SOLID WASTE, EPA PUBLICATION /SW846, THIRD EDITION, NOVEMBER 1986



1700 Tear Albany . Brokes Arrow, Oklahorna 74012 . Office (918) 251-2856 . Pax (910) 251-2559

METCALF AND EDDIE CLIEFT:

1 PIRRCE PLASA, STE 1400-W

ITABCA, IL, 60143 ATTH: DENISE STORY

REPORT: 15022.013

DATE: 10-27-93

SAMPLE MATRIX: SOIL SWLO # 16022.01

METSOD REFERENCE: OA-1 DATE SUBMITTED: 10-21-93 DATE AMALYSED: 10-22-93 PROJECT: MARLEY FUMP CO.

SAMPLE ID: B-1 4-6

LIMIT PARAMETER

WIT

RESIDENCE.

TOTAL PURGRABLE PRINCIPLE HYDROCARROWS

GASOLINE

10.0

wa/Ka

13.6

OA/OC SHREGGATE RECOVERE

4-BROMOFILUOROBEN SENS

109%

- NOT DETECTED ABOVE QUARTITATION LINIT

- COMPOUND FOUND IN BLANK AS WELL AS SAMPLE - ESTINATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION

- UNABLE TO QUARTITATE DUE TO MATRIX INTERPERENCE



1700 West Albany - Broken Arrow, Oklahoms 74012 - Office (910) 251-2658 - Res (910) 251-260

CLIENT:

HETCALF AND EDDIE 1 PIERCE PLAIA, STE 1400-W ITASCA, IL, 60143

ATTH: DENISE STORY

REPORT: 16022.02BX

DATE: 10-27-93

SAMPLE WATRIX: SOIL

SWLO # 16022.02 DATE BAMPLED:

DATE SUBMITTED: 10-21-93 DATE AWALYEED: 10-25-93

DILUTION PACTOR: 1.0

METHOD REFERENCE: #W646-6020 PROJECT: MARLEY PUMP CO.

SAMPLE ID: B-2 6-8

PARAMETER	QUANT.	1975	BREILER
GAS CERCNATOGRAPHY			
Tatries Lativies Lativies Persene	1.0 1.0 1.0	ug/Kg ug/Kg ug/Kg ug/Kg	ND ND ND

QA SHQURNCE NO: 38102393 QA/QC SHEROGETE RECOVERING

4-BROMOFLUOROBENSENE (45-1354)

44

ND - NOT DETECTED ABOVE QUARTITATION LIMIT

R - AMALYTE DETECTED IN BLANK AS WELL AS SAMPLE

J - EFTIMATED VALUE: CONCRITRATION BELOW LIMIT OF QUARTITATION

. - SUPROGATE RECOVERY OUTSIDE OF QC LINITE ON ORIGINAL RUE AND BERUE.

SW - TEST NETRODS FOR EVALUATING SOLID WARTS, EPA PURLICATION /SW046, THIRD EDITION, NOVEMBER 1986



1700 West Albany * Broken Arrow, Chiahoma 74012 * Office (918) 251-2858 * Fax (918) 251-2599

CLIENT: METCALF AND EDDIE

1 PIERCE PLASA, STE 1400-W

17ASCA, 1L, 60143

ATTW: DENISE STORY

REPORT: 16032.021

DATE: 10-27-93

SAMPLE MATRIX: SOIL

SWLO # 16022.02

KETHOD REFERENCE: DA-1 DATE SUMMITTED: 10-21-93

DATE AMALYSED: 10-22-93

PROJECT: NARLEY PUMP CO.

SAMPLE ID: B-2 6-8

PARAMETER

19817 RESIDE

TOTAL PURGEABLE PETROLEUM EYDROCAPROME

GAROLINE

10.0

ug/Kg

CA/OC_EXPROSATE_RECORTES

4-BROMOFLUOROBENSERS

63%

ND - NOT DETECTED ABOVE QUARTITATION LIMIT

- COMPOUND POUND IN BLAME AS WELL AS SAMPLE

- ESTIMATED VALUE: CONCRUTATION BRICK LIMIT OF QUANTITATION

- UNABLE TO DESARTITATE DUE TO MATRIE INTERPERENCE



PARAMETER

SOUTHWEST LABORATORY OF OKLAHOMA. INC.

ST LABORATORIES

1700 West Albany . Broken Arrow, Oktaborns 74012 . Office (910) 251-2656 . Pag (910) 251-2666

DETO

The same series have a design and interpretation

CLIENT: HETCALF AND EDDIE

1 PIERCE PLANA, STE 1400-W

ITASCA, IL, 60143 ATTM: DESIGN STORY

REPORT: 16022.04BE

PERMIT

DATE: 10-27-93

BARFLE MATRIX: SOIL

EWLO # 16022.04 10-19-93

DATE SAMPLED:

DATE SUBMITTED: 10-21-93 DATE AMALYEED: 10-25-93

DILUTION FACTOR: 1.0

METROD REFERENCE: SWE44-8020 PROJECT: MARLEY PUMP CO.

SAMPLE 10: B-3 6-0

CULTY. LDOT

GAS CROMATOGRAPHY BEXIZEE 1.0 wg/Kg TOLUENE 1.0 ug/Kg 0.6 HTHYLDESIENS 1.0 ug/Kg MD. XTLEMES 1.0 wg/Rg m

> QA SECURECE SO: 38102593 CA/OC SERROGERY PRODUCTES

4-BROMOFLUGROBENSENE (65-135%)

764

MD - NOT DETECTED ABOVE QUANTITATION LINIT

B - AMALYTE DETECTED IN BLANK AS WELL AS SAMPLE

- ESTIMATED VALUE: CONCRETEATION BELOW LIMIT OF QUARTITATION

- SURROGATE RECOVERY OUTSIDE OF OC LIMITS ON ORIGINAL RUN AND BERUN. SW - TEST METHODS FOR EVALUATING SOLID WASTE, EPA PUBLICATION #8W846, TRIND

EDITION, POYEMBER 1936



SW LABORATORIES

1700 West Albany . Broken Arrow, Oklahoma 74012 . Office (918) 251-2858 . Pag (918) 251-2599

KETCALF AND EDDIE

1 PIERCE PLASA, STE 1400-W

ITASCA, IL, 60143 ATTW: DEMISS STORY

REPORT: 15022.041

DATE: 10-27-93

SAMPLE MATRIX: SOIL

SWLO # 16022.04

METHOD REFERENCE: OA-1 DATE SUBMITTED: 10-21-93

DATE AMALYZED: 10-22-93 PROJECT: MAKLEY PUMP CO.

SAMPLE 1D: 8-3 6-6

DET. PARAMETER

LIMIT

TOTAL PURGRABLE PETROLEUM HYDROCAPROMS

GASOLINE

10.0

ug/Rg

42.54

13.0

COSE OF

RESULTS

OR/OC SUBMODATE RESORRING

4-BROMOFLUOROBREZEME

MD - MOT DETECTED ABOVE OULSTITATION LIMIT

- COMPOUND POUND IN BLANK AS WELL AS SAMPLE

- ESTINATED VALUE: CONCENTRATION BELOW LIMIT OF QUARTITATION

- UNABLE TO QUANTITATE DUE TO MATRIX INTERPREDEZ



1700 West Albarty . Broken Arrow, Oklahoma 74012 . Office (310) 251-2858 . Paz (910) 251-2899

METCALF AND EDDIE CLIEBT:

1 PIERCE PLASA, STE 1400-W

ITASCA, IL, 10143 ATTE: DENISE STORY **KEPORT: 16022.03BX**

DATE: 10-27-93

SAMPLE HATRIX: SOIL

EWLO / 16022.03 DATE SAMPLED: 10-19-93 DATE SUBSTITED: 10-31-93

DATE ANEXYSED: 10-25-93 DILUTION FACTOR: 3.0

METHOD REFERENCE: SW846-6020 PROJECT: MARLEY PUMP CO. SAMPLE ID: MW-4 9.5-11.5

PARAMETER	QUANT.		PRESERVE
GAS CHRONATOGRAPHY			
Beneene	1.0	nd\ rd	WD
TOLUENE	1.0	ug/£g	MD
ETHYLBEN ZENE	1.0	ug/£g	II D
XYLENES	1.0	ug/Kg	NED.

QA SECURNCE NO: 38101593 OR/OC SUBBOURNER RECOVERIES.

4-BROMOFLOOROBEHSEER (65-135%) 768

ND - NOT DETECTED ABOVE QUANTITATION LIMIT

- AMALYPE DETECTED IN BLANK AS WELL AS SAMPLE

- ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUARTITATION

- SURROGATE RECOVERY OUTSIDE OF QC LIMITS OF CRIGINAL RUN AND RERUN.

SW - TEST NETRODS FOR EVALUATING SOLID WASTE, EPA PUBLICATION #SW846, TRIED EDITION, MOVEMBER 1986



SW LABORATORIES

1700 West Albany > Broken Arrow Oklahoung 74012 * Office (916) 251-2656 * Pag (916) 251-260

METCALF AND EDDIE

1 PIRECE PLACE, STE 1400-W

ITABCA, IL, 60143 ATTY: DENISE STORY REPORT: 16022.031

DATE: 10-27-93

SAMPLE MATRIX: SOIL SWLO # 16022.03

METROD REFERENCE: OA-1 DATE SUBMITTED: 10-21-93 DATE AMALYSED: 10-22-93

PROJECT: MARLEY PURP CO. SAMPLE ID: NW-4 9.5-13.5

DET. PREAKTER LINIT

TOTAL PURCEABLE PETROLEUM HYDROCARBOHS

GASOLINE

10.0

ug/Kg

MIT

20

RESULTS.

OBJOC SUPPOSATE BECOMES

4-BRONOFLUOROBENTENE

744

- NOT DETECTED ABOVE QUANTITATION LIMIT

- COMPOUND POUND IN BLANK AS WELL AS SAMPLE

* ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUARTITATION

- UMABLE TO QUARTITATE DUE TO MATRIE INTERPERENCE



1700 West Albany . Broken Arron. Oklahoma 74012 . Office (918) 251-2856 . Pag (918) 251-2999

METCALF AND EDDIE

REPORT: 16022.05BX

1 PIERCE PLASA, STE 1400-W ITABCA, IL, 60143

DATE: 10-27-93

ATTE: DESIGE STORY

SAMPLE MATRIX: WATER

EWLO # 16022.05

DATE SAMPLED: 10-20-93

DATE SUBMITTED: 10-21-93 DATE AMALYZED: 10-26-93

DILUTION FACTOR: 1.0

METROD REFERENCE: 8W846-8020

PROJECT: MARLEY PUMP CO.

SAMPLE ID: MM-1

PARAMETER	COAFT.	WIT	20/10/44
GAR CHROHATOGRAPHY			
BERTINE	1.0	ug/L	Mo
Tolubne	1.0	ug/L	.6 J
ETHYLBEH LENE	1.0	ug/L	RD
TYL SHTR	1.0	ng/L	4 1

OR REQUESCE NO: 38102693 OA/OC SERRICGATE SECONSTILES

4-BROMOFLUCROBEFERUR (45-1354) 1074

ND - NOT DETECTED ABOVE QUANTITATION LIMIT

- AMALYTE DETECTED IN BLANK ES WELL AS SAMPLE - RETINATED VALUE: CONCENTRATION BELOW LIMIT OF QUARTITATION

- SURROGATE RECOVERY OUTSIDE OF QC LIMITS ON ORIGINAL ROW AND RERUN.

EW - TEST METHODS FOR EVALUATING SOLID WASTE, EPA PUBLICATION / BWS45, TRIED EDITION, ECVENGER 1986



SW LABORATORIES

1707 West Albury . Broken Arrow, Okishoma 74012 . Office (918) 251-2656 . Pas (916) 251-2595

CLIENT: HETCALF AND EDDIE

14:22

1 PIERCE PLAZA, STE 1400-W

ITASCA, IL, 60143 ATTW: DEMISE STORY

DEPORT: 16022.051

DATE: 10-27-93

SAMPLE MATRIX: WATER EVIA # 16022.05 METEOD REFERENCE: OA-1 DATE SUBMITTED: 10-21-93 DATE AWALYZED: 10-25-93 PROJECT: MARLEY PUMP CO.

SAMPLE ID: NW-1

DET.

LIMIT PARAMETER

TOTAL PURGEARLE PETROLEUM HYDROCARRUES

Pet -- 242

REILES

GAROLINE

10.0

eg/L

MILE

OR FOR SUPPOSATE PRODUCET

4-BRONOFLUOROSENZEME

113%

M) - NOT DETECTED ABOVE QUARTITATION LIMIT B - COMPOUND FOUND IN BLANK AS WELL AS SAMPLE

- ESTIMATED VALUE: CONCENTRATION BELOW LINIT OF QUANTIFATION

. UMABLE TO QUARTITATE DUE TO MATRIX INTERPRESENCE



SW LABORATORIES

1700 West Albany * Broken Arrow, Oklahoma 74012 * Office (918) 251-2856 * Pas (916) 251-259?

CLIEFT: METCALF AND EDDIR

1 PIERCE PLASA, STE 1400-W

ITASCA, IL, 60143

ATTM: DENISE STORY

REPORT 16022.06BX

DATE: 10-27-93

SAMPLE MATRIX: WATER

SWLO # 16022.06

DATE SAMPLED: 10-20-93

DATE SUBMITTED: 10-21-93

DATE AMALYSED: 10-26-93 DILUTION FACTOR: 5.0

METECD REFERENCE: SW646-6020 PROJECT: MARLEY PUMP CO.

SAMPLE ID: NW-2

PARAMETER	QUARY.	<u> </u>	
GAS CHRONATOGRAPHY			
Beneere Toluene Etaylbenzene Xylenes	5.0 5.0 5.0 5.0	ug/L ug/L ug/L ug/L	168 21.8 3.6 J 178

GA BEQUENCE NO: 28102693 ON/OC SUPROGREE PROOFERIES

4-BROMOFLUOROBERSEUR (65-135%) 1224

MD - NOT DETECTED ABOVE QUANTITATION LIMIT

B - ARALYTS DETECTED IN BLANK AS WELL AS SAMPLE

- KSTIMATED VALUE: CONCENTRATION BELOW LIMIT OF CHARTITATION

" - SURBOGATE RECOVERY GUTSIDE OF QC LIMITS ON ORIGINAL ROW AND RESUM. SW - TEST RETECOS FOR EVALUATING SOLID WARTS, EPA PUBLICATION /SW645, THIRD

EDITION, NOVEMBER 1986



ST LABORATORISE

1700 West Albuny . Broken Arrow, Oklahoma 74012 . Office (918) 251-2850 . Fax (918) 251-2999

METCALF AND EDDIE CLIENT:

1 PIERCE PLASE, STE 1400-W

ITABCA, IL, 50143 ATTW: DENISE STORT

REPORT: 16022.061

DATE: 10-27-93

SAMPLE MATRIX: WATER

SWLO # 16022.06 METHOD REPERBUCE: 0A-1

DATE SUBMITTED: 10-21-93 DATE AMALYSED: 10-25-93

PROJECT: MARLEY PUMP CO.

SAMPLE ID: NW-2

BET.

LIMIT

WITT

RECULTS

TOTAL PURGERRIA PETROLEUM EVEROCARROME

GABOLINE

PARAMETER

10.0

ug/L

995

OA/OC SURBOGATE PRODUKTY

4-BRONOFIJOROBENIEME

197% **

- SURROGATE RECOVERY OUTSIDE OF QC LIMITS ON ORIGINAL RUN AND RERUN
- NOT DETECTED ABOVE QUARTITATION LIMIT MD.
- COMPOUND FOUND IN BLANK AS WELL AS SAMPLE ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION
- UMABLE TO COASTITATE DUE TO MATRIX INTERPERENCE



ST LABORATORIES

1700 West Albary . Broken Arrow, Oklahoma 74012 . Office (918) 251-2858 . Paz (918) 251-2599

CLIENT: HETCALF AND EDDIE

1 PIERCE PLASA, STE 1400-W

ITASCA, IL, 60143

ATTE: DENISE STORY

REPORT: 16022.07BE

DATE: 10-27-93

SAMPLE MATRIE: WATER

BWLO # 16022.07

DATE BAMPLED: 10-20-93

DATE BURNITTED: 10-21-93 DATE AWALYEED: 10-26-93

DILUTION FACTOR: 1.0

METHOD REFERENCE: SW646-8020

PROJECT: MARLEY PUMP CO.

SAMPLE ID: NW-3

	PARAMETER GAS CEROMATOGRAPHY	QUADE.		2200.54
)	DEFIERE	1.0	wg/L	7.9
	TOLUERE	1.0	ug/L	25.6
	STRYLBENIENE	1.0	ug/L	2.9
	XYLERES	1.0	ug/L	6.1

OA \$800MENCS NO: 28102693 ON/OC SURRECONTR RECOVERIES

4-BROMOFLUORGBENSEME (65-135%)

121%

ND - NOT DETECTED ABOVE QUARTITATION LIMIT

B - AMALYTE DETECTED IN BLANK AS WELL AS SAMPLE

- ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION

* - SURROGATE RECOVERY OUTSIDE OF QC LINITS ON ORIGINAL RUN AND RERUN.

SW - TEST METHODS FOR SVALUATING SOLID WASTE, EFA PUBLICATION /SWE46, TRIED EDITION, NOVEMBER 1986



1700 West Albany * Broken Airow, Oklahoma 74012 * Office (918) 251-2858 z Fast (918) 251-2599

CLIENT: METCALF AND EDDIE

1 PIERCE PLASA, STS 1400-W

ITABCA, IL, 60143

ATTE: DERISE STORY

REPORT: 16022.071

DATE: 10-27-93

SAMPLE MATRIX: WATER 8WLO # 16022.07

METHOD REPERENCE: OA-1 DATE SUBMITTED: 10-21-93

DATE ANALYSED: 10-25-93 PROJECT: MARLEY PUMP CO.

SAMPLE ID: MW-3

DET.

PARAMETER TOTAL PURGEABLE PETROLEUM EYOROCARROWS

GASOLINE

10.0

ug/L

WITT

177

建设金加工学会

OA/OC SURBOGATE ERCOVERE

4-BROKOFLUOMOBEREENT

ME - NOT DETECTED ABOVE QUARTITATION LINIT

- COMPOUND FOUND IN BLANK AS WELL AS SAMPLE

- ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION

- UNABLE TO QUANTITATE DUE TO NATRIX INTERPERENCE



SOUTHWEST LABORATORY OF OKLAHOMA, INC. 1700 West Albamy * Broken Arrow, Oklahorus 24012 * Office (918) 231-2856 * Paz (918) 231-2559

ST LABORATORIES

CLIENT: METCALF AND EDDIE

1 PIERCE PLAZA, STE 1400-W

ITASCA, IL, 60143 ATTW: DEWISE STORY

REPORT: 15022.088X

DATE: 10-27-93

SAMPLE MATELI: WATER

SWLO # 16022.08

DATE SAMPLED: 10-20-93

DATE SUBMITTED: 10-21-93 DATE AMALYSED: 10-25-93

DILUTION FACTOR: 1.0

METHOD REPERENCE: SW846-8020

PROJECT: NARLEY PUMP CO.

SAMPLE ID: 184-4

PARMITTE	QUANT.	2077	388UT-04
GAA CHROMATOGRAPHY			
xaferes Eleatoenseac Lotaene Benegae	1.0 1.0 1.0 1.0	ng/L ng/L ng/L ng/L	ND ND ND

OA SHOURICK BO: 38102592 OA/OC SUBSOCATE RECOVERING

4-BROMOFLUORUSEWSEWE (65-135%)

ND - NOT DETECTED ABOVE QUANTITATION LINIT

B - AMALYTE DETECTED IN BLAME AS WELL AS SAMPLE

J - ESTIMATED VALUE: CONCENTRATION RELOW LIMIT OF COLUMNITATION

* - SURROGATE RECOVERY OUTSIDE OF CC LIMITS ON ORIGINAL RUN AND REROW. SW - TRST METHODS FOR SVALUATING SOLID MASTE, EPA PUBLICATION #SWR46, TRIED EDITICE, MOVEMBER 1986



1700 West Albany * Broken Anow, Oktahoma 74012 * Office (918) 251-2856 * Fax (818) 251-2999

METCALF AND EDDIE

1 PIERCE PLAZA, STE 1400-W

ITASCA, IL, 60143 ATTW: DEMISE STORY

REPORT: 16022.081

DATE: 10-27-43

SAMPLE MATRIX: WATER

SWIG # 16022.08

METHOD REFERENCE: OA-1

DATE SUBMITTED: 10-21-93

DATE AMALYCED: 10-25-93 PROJECT: MARLEY PUMP CO.

SAMPLE ID: HW-4

DET.

PARAMETER LIMIT **WIT**

STRITLES.

TOTAL PURGEABLE PETROLEIM EVEROCARROWS

CASOLINE

10.0

uq/L

ON/OC CUMBOONTE RECOVERT

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MD - NOT DETECTED ABOVE QUANTITATION LIMIT

- COMPOUND FOUND IN SLAWE AS WELL AS SAMPLE - ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION

. UNABLE TO QUARTITATE DUE TO MATRIE INTERPERENCE



1700 West Albany . Broken Arrow, Oklahome 74012 . Office (518) 251-2656 . Fax (918) 251-2460

METCALF AND EDDIE

REPORT: 16022.09BX

1 PIERCE PLASA, STE 1400-W

ITASCA, IL, 50143 ATTN: DENIST STORY DATE: 10-27-43

SAMPLE MATRIX: WATER

SWLO # 16022.09

10-20-93

DATE SAMPLED: DATE SUBMITTED: 10-21-93

DATE AMALYZED: 10-25-93

DILUTION PACTOR: 1.0

NETEOD REFERENCE: EW845-6020 PROJECT: MARLEY PUMP CO.

SAMPLE ID: MW-4D

PARAMETER	QUANT.	10019	20001.26
GAR CHPOUTOGRAPHT			
EAFENES ELEAFOERIENE EOFGENE BERIENE	1.0 1.0 1.0	ug/L ug/L ug/L ug/L	NO NO NO NO

OA SECURICE DO: 19102599 OA/OC CHEROGATE MRCOVERING

4-EROMOFIJOROBENEENE (45-135%)

NO - NOT DETECTED ABOVE QUANTITATION LINIT

- AMALYTE DETECTED IN BLANK AS WELL AS SAMPLE

. ESTIMATED VALUE: CONCRUTATION BELOW LIMIT OF QUARTITATION

- SURROGATE RECOVERY OUTSIDE OF QC LIMITS ON ORIGINAL NUM AND RENUM.

SW - TEST METEORS FOR EVALUATING BOLID WASTE, RPA PUBLICATION / SW846. THIRD EDITION, NOVEMBER 1966



1700 West Albans . Broken Arlow, Oklahoras 74012 . Office (916) 251-2056 . Yex (916) 751-2999

CLIEFT; METCALF AND EDDIE

1 PIERCE PLANA, STE 1400-W ITASCA, IL, 60143 ATTW: DESIGN STORY

REPORT: 16022.091

DATE: 10-27-93

SAMPLE MATRIE: WATER SWLO # 16022.09 PETHOD REFERENCE: OA-1 DATE SUBMITTED: 10-21-93 DATE AWALYSED: 10-25-93 PROJECT: MARLEY PUMP Co. SAMPLE ID: NW-4D

DET. PARAMETER LIMIT WIT AREVLES TOTAL PURGRABLE PETROLEUM EVIDROCARROWS GASOLINE 10.0 uq/L

A/OC ETHROGRAF BRODERS

4-BROMOFILDOROBERTERE

898

MD - MOT DETECTED ABOVE QUANTITATION LIMIT

- COMPOUND POUND IN BLANK AS WELL AS SAMPLE

- ISTINATED VALUE: CONCENTRATION BRIOW LINIT OF CURNITITATION

. UNABLE TO QUANTITATE DUE TO MATRIX INTERPRESELY

METCALF & EDDY, INC SOIL AND GROUNDWATER LABORATORY ANALYTICAL DATA JANUARY 6, 1994 - MONITORING WELL MW-3

ANALYTICAL REPORT

Denise Story METCALF & EDOY, INC. One Pierce Place Suite 1500-W Itasca, IL 60143 708/775-0300

01/12/1994

NET Job Number: 94.00104

NET Sample Eumber: 236572

Californial law After heat

Collectors Fours No.s 700/779-0000

Job Separaptions MAJECT 8016165-0005 - SAVEMORT, ICAN

Doto Takens #1/66/1996

Sample 19: Mr-3 Markey Pump	Co.				Boto Socolved:	61/6	7/194	
desirte	back	Roouls <u>Unita fia</u> s		Boto <u>Analyzná</u>	History	Beper Lin		Note in
MOLATILES - BYEK (SATM)								
Berzene	419	ug/L	kje	91/10/1994	0-0015/EX-0A1	5.0	4	Metar
Ethyl burgane	<10	wa/L	kjt	B1/10/1904	8-0015/1A-0A1	2.0	ΨΛ	
Tecum	17	WE/L	tje	PI/10/1994	0-0015/1A-0A1	2.6	MD/L	Motor
Eylones, Total	<18	Mag/L	k)t	91/36/1984	9-0015/LA-061	2.6	49/1	Motor
Total Bydyscarburg	12	eg/L	k!t	01/10/1994	1-015/LL-0A	0,10	49/1	Weter

MOTE: Semple contains 2 large non-target peaks which resulted in elevated reporting limits.

M. L. Bindert Operations Manager

NET NATIONAL ENVIRONMENTAL TESTING, INC.	ADDRESS JUJE 1800	STODY CORD SAY THE THE PROPERTY OF THE PROPER	PO NO NET QUETE NO DESCRIPTION OF THE PARTY
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AL Dust of Markets Angels

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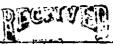
MANAGE:

600 473 337 7194

QUAD CITY WATER TREATMENT CO.

1796 love Orivs + F.O. Box 745 + LeCaire, love 52753-0745 PH. (319) 209-3373 + Fax (319) 209-5526

LABORATORY REPORT



PERSONNEL DEPT.

MR. DAVE VANZUIDEN MARLEY PUMP CO. 500 EAST 59TH ST DAVENPORT. IOWA 52607

REPORT DATE: 6-9-94 SAMPLE REC: 5-10-94 SAMPLE DATE: 5-10-94

OFFICE WATER FOUNTAIN

TRICHLOROSTHYLENE <0.001 PPM
TRICHLOROSTRAMS <0.001 PPM
METHODS: SN 846 8250

SHIPSHAPE DRUM

TOTAL SOLIDS

2410 MG/L

ANALYSIS CERTIFIED BY: ROBERT B. MACK ENVIRONMENTAL CO-EDUS

319 3913619

PAGE . 802

APPENDIX XII (B) OFF-SITE CONTAMINATION SOURCE SUPPORT DATA

Not applicable. The source is on-site.

APPENDIX XIII SITE RISK CLASSIFICATION AND JUSTIFICATION

A. HIGH RISK SITE CONDITIONS

- Confined spaces or occupied spaces have not been impacted by the petroleum release as evidenced by the PID and CGI vapor survey conducted in the pumphouse manhola located near the southwest corner of the property. Other utilities could not be surveyed because they were not accessible nor were open trenches available to survey. Therefore, benzene in occupied structures/utilities will not likely exceed 10 ppm for an 8 hour day.
- A confined space survey was conducted and vapors were not present (see answer to question 1).
- 3. Surface water bodies such as lakes, streams, and ponds are not located within 1,000 feet (304.8 meters) of the designated petroleum impacted area. At an average hydraulic conductivity of 2.61 m/year, it would take over 117 years to reach the creek located east of this site. Surface water body samples were not collected.
- 4. Laboratory analytical data indicated that soil samples collected from each borehole did not exceed the IDNR action level of 100 mg/kg. MW-3 registered the highest P1D reading, 141 ppmv (15 17.5*). The laboratory results for this sample was recorded at none detected TPH. The soil sample collected at 7.5 10 feet below grade registered at 0.016 ppm, well below the IDNR action level. Therefore, no soil exceeding 100 mg/kg is in contact with a water transmission line. Furthermore, the water transmission line near the site are made of cast iron and not PVC.
- 5. Soil laboratory analytical data indicated that the IDNR action level of 100 mg/kg was not exceeded in any soil boring or monitoring wells. The highest TPH reading, 0.0016 ppm, was recorded from MW-3 at the 7.5 10 foot interval. The 141 ppmv PID reading, taken at the 15 17.5' interval, was recorded by the laboratory as non-detect TPH. Soil analytical data collected from other borings and intervals indicate that non-detect level of TPH. Therefore, soil located within the vicinity of the utility conduits is not impacted.

Open utility trenches were not available to conduct a soil vapor survey. To avoid puncturing a utility line, drilling was not conducted in the backfill trenches. However, three soil borings and four monitoring wells were placed in the vicinity of the utility lines to determine whether petroleum contamination had come into contact with the utility conduits' trenches thereby migrating to the native material.

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Groundwater elevations from the four on-site monitoring wells indicate that the flow direction is toward the east-southeast and that the water elevations range from 11 - 18 feet below grade. Utility trench cepths in the vicinity of the UST ranged from 2 feet below grade to 8 feet below grade.

Groundwater analytical results indicate that three (MW-1, MW-3, and MW-4) of the four monitoring wells had not exceeded IDNR standards for BTEX constituents. Monitoring well MW-2 (168 ug/l) had exceeded the IDNR action level for benzene (5 ppb) only. The water level for MW-2 was 16.59 feet below grade. MW-2 is located in the vicinity of a steel gas main (buried approximately 42° below grade), a steel water main (buried approximately five feet below grade), and a by-pass water main (buried approximately five feet below grade). However, the depth to groundwater is much deeper than the utility trenches hence, fluctuation in the groundwater elevations would not impact the utility conduits.

- 6. The petroleum contamination is not present in high concentrations to affect or cause any damage to utility lines or structures. Furthermore, the utility lines are not in contact with the groundwater (groundwater ranges in depth from 11 feet to 18 feet below grade). The deepest utility trench is 8 feet below grade.
- Laboratory analytical data indicate that the soil did not exceed 100 mg/kg for total 7 organic hydrocarbons. Soil analytical data ranged from non-detect in MW-1, MW-2, MW-4, and B-2 to 0.016 ppm in MW-3, well below the IDNR action level. All inhabitants of 59th Street, rely on the city of Davenport as a water supply. Harley Pump company does have an operating water supply well located within 1,000 feet of the impacted area. This well supplies the plant with industrial water and drinking water. The depth of this well is approximately 240° and has a steel casing. This well withdraws water from a much deeper source that is separated by many differing stratigraphic units, some of them being aguitards. Well construction information is not available nor is the prologic log. However, the local geology consists of a clavey ailt (thickness of 20 - 25 feet below grade) and is underlain by a glacial till. The soil strata is consistent throughout the site as made evident by on-site soil borings. Hydraulic conductivities for the clavey silt range from 0.00673 m/day to 0.00804 m//day. Transmissivities range from 0.0022 m²/sec to 0.0073 m²/sec. Documented evidence indicated that the glacial till has a hydraulic conductivity equal to approximately 1 x 105 m/day. This layer acts as an aquitard and helps protect the deeper water sources from impact.

The substance needing to be addressed is gasoline. Gasoline consists of a wide variety of hydrocarbons. Benzene, ethylbenzene, toluene and xylene (BTEX) will be used as surrogate parameters for the wide variety of hydrocarbons found in gasoline. Although biodegradable, gasoline may persist in the environment while adsorbed on soil particles, floating on groundwater as a separate phase liquid, or dissolved in the groundwater. Gasoline constituents may migrate, however, the rate of migration is controlled by the geology of the impacted area.

CHEMICAL	FLASH POINT (°F)	FLAMMABLE LIMITS (%)	DENSITY (at 20°C)	SOLU- BILITY (% at 20°C)	VAPOR PRESSURE (mm He)	HENRY'S LAW CONSTANT
gasoline	-36	1.3 - 7.4	0.73	NA	383	NA_
benzene	12	1.3 - 7.1	0.88	0.18	75	240
toluene	40	1.3 - 7.1	0.87	0.05	22	330
ethylbenzene	59	1.0 - 6.7	0.37	0.02	7.1	350
xylene (all isomers)	81 - 90	1.0 to 7	0.86 to 0.88	immis- cible	9	not appli- cable

Due to the low permeability of the soils, the migration potential of these constituents is low.

8. Laboratory analytical data indicated that soil samples collected from each borehole did not exceed the !DNR action level of 100 mg/kg. Soil analytical data ranged from non-detect in MW-1, MW-2, MW-4 and B-2 to 0.016 ppm in MW-3, well below the !DNR action level. Additionally, due to torrential downpours and flooding in the Davenport area in 1993, the seasonal high water elevation was established. And, the seasonal high groundwater level of a protected groundwater source or groundwater serving as a public or private water source, was not affected. The city of Davenport obtains its water from the Mississippi River (the public water supply source).

Marley Pump Company has a water supply well on site. This well is approximately 240' deep and is encased in steel. The water table (aquifer) in question is approximately 200' above a private protected groundwater source. Within this 200', several differing stratigraphic units exist, some of them being aquitards. The local geology consists of a clayey silt (thickness of 20 - 25 feet below grade) and is underlain by a glacial till. The soil strata is consistent throughout the site as made evident by on-site soil borings. Hydraulic conductivities for the clayey silt range from 0.00673 m/day to 0.00804 m//day. Transmissivities range from 0.0022 m²/sec to 0.0073 m²/sec. Documented evidence indicated that the glacial till has a hydraulic conductivity equal to approximately 1 x 10° m/day. This layer acts as an aquitard and helps protect the deener water sources from immed.

 The petroleum release did not occur in fractured limestone nor learst topography. The site is not characterized by sinkholes, caves, and/or underground drainage. The site is characterized by clayey silt undertain by a glacial till. No discontinuities occur in the clayey silt.

For further information, see Section II, Current site conditions for general geology,

- 10 Mariev Pumo Company has one water supply well located on the west side of the manufacturing building and is approximately 40 feet southwest of the UST. The water supply well is situated 240 feet below grade and is encused in steel. The well casement provides protection from other overlying inferior strata and allows quality water to be used for industrial and potable purposes. Furthermore, the overlying strate, particularly in the area of the UST, an industrial water supply well, consists of a silty clay (K = 0.00673 m/day to 0.00804 m/day. Situated below the silty clay unit is a glacial till. This till is located approximately 20 - 25 feet below grade and is continuous. According to Freeze and Cherry (1979), glacial till has a hydraulic conductivity of 8.64 x 104 m/day to 8.64 x 107 m/day. This layer acts as an aquitard which impedes the infiltration of groundwater to stratigraphic units below. Additionally, the soil has not been impacted above the IDNR action level for TPH, 100 ppm. Groundwater has only been exceeded in one monitoring well, MW-2, for benzene. The groundwater which exceeded IDHR level for benzene is not used as a public or private water supply source nor is it a protected water supply source.
- 11. It is unlikely, given the hydraulic conductivities of the soil (10⁴ m/sec) that a protected water source would be impacted. The public water source for drinking water is the Mississippi River. The contaminated area is not greater that 19 25 feet below grade. Deeper water sources are protected by an aquitard, a glacial till, which lies 20 25 feet below grade and is continuous.
- 12. The contaminated groundwater plume is within 100 feet of natural or manmade structures or conduits. The utilities, at their maximum buried depth are 8 feet below grade. The groundwater level at the site ranges from 11 feet (upgradient well MW-3) to 18 feet below grade (downgradient wells MW-2 and MW-4). Most utilities are located near MW-2 and MW-4. Therefore, since the utilities are located significantly above the water table, the utility trenches will not transport contaminants to the subsurface and impact the protected groundwater source that is used for a public or private water supply (The Mississippi River is used as the public water supply). For further information, see answers to questions 10 and 11.
- 13. Marley Pump Company has one water supply well located on the west side of the manufacturing building and is approximately 40 feet southwest of the UST. The water supply well is situated 240 feet below grade and is encased in steel. The well casement provides protection from other overlying inferior strata and allows quality water to be used for industrial and potable purposes.

Furthermore, the overlying strata, particularly in the area of the UST an industrial water supply well, consists of a sitty clay (K=0.00673 m/day to 0.00804 m/day. Situated below the sitty clay unit is a glacial till. This till is located approximately 20 - 25 feet below grade and is continuous. According to Freeze and Cherry (1979), glacial till has a hydraulic conductivity of $8.64 \times 10^{-7} \text{ m/day}$. This layer acts as an aquitard which impedes the infiltration of groundwater to stratigraphic units below. Additionally, the soil has not been impacted above the IDNR action level for TPH, 100 ppm. Groundwater has only been exceeded in one monitoring well, MW-2, for benzene. The groundwater which exceeded IDNR level for benzene is not used as a public or private water supply source nor is it a protected water supply source.

Because of the following points, the site can be classified as a low risk site.

- The soil in the vicinity of the UST consists of low hydraulic conductivity silty clays (10³ m/day) to glacial till (10⁴ m/day).
- The water supply well, located within 1,000 feet of the UST, is protected by a steel casing and approximately 200 feet of diverse stratigraphic units, some of them being aquitards.
- The groundwater does not qualify as a protocted water source nor is it used as a private water supply source.
- 14. The subsurface soil consists of clayey silt. Beginning at grade and continuing into the subsurface, the clayey silt has a thickness of 20 to 25 feet. The clayey silt is consistent and has no discontinuities as evidence by four on-site borings. The clayey silt is at least 3 meters (9.84 feet) thick. The hydraulic conductivity of this unit ranges from 0.0068 m/day to 0.00804 m/day.

The analytical data indicates that the subsurface soil did not exceed the IDNR soil action level of 100 mg/kg TPH. Even though a PID reading for MW-3 (15' - 17') indicated 141 ppmv of total volatile organic compounds, the laboratory soil analytical data indicated non-detect TPH levels. The PID is used as a survey tool to assist the field person in the determination of sample collection for laboratory analysis.

The clayey silt is underlain by a glacial till. According to Freeze & Cherry (1979), giacial till hydraulic conductivities range from 10⁴ m/day to 10⁷ m/day. The glacial till is continuous. This stratigraphic unit is an aquitand which impedes the infiltration of groundwater to underlying units. This glacial till is between the impacted groundwater zone (a non-protected public and private water source) and a protected groundwater source. Furthermore, the Marley Pump company does have a water supply well within 1,000 feet of the UST. This well is 240 feet deep and is encased in steel. Marley Pump has the water tested for volatile organic compounds. The levels were non-detect.

The substance which needs is to be addressed is gasoline. Gasoline consists of a wide variety of hydrocarbons. Benzene, ethylbenzene, toluene and xylene (BTEX) will be used as surrogate parameters for the wide variety of hydrocarbons found in gasoline. Although biodegradable, gasoline may persist in the environment while adsorbed on soil particles, floating on groundwater as separate phase liquid, or dissolved in the groundwater. Gasoline constituents may migrate, however, the rate of migration is controlled by the geology of the impacted area.

Physicochemical characteristics of gasoline and BTEX compounds are presented below:

CHEMICAL	FLASH POINT (*7)	FLAMMABLE LIMITS (%)	DENSITY (at 20°C)	SOLU- BILITY (% at 20°C)	VAPOR PRESSURE (mm Hg)	HENRY'S LAW CONSTANT
gasoline	-36	1.3 - 7.4	0.73	NA	383	NA
benzene	12	1.3 - 7.1	0.88	0.18	75	240
toluene	40	1.3 - 7.1	0.87	0.05	22	330
ethylbenzene	59	1.0 - 6.7	0.87	0.02	7.1	350
xylene (all isomers)	81 - 90	1.0 to 7	0.86 to 0.88	immis- cible	9	not appli- cable

Due to the low permeability of the soils, the migration potential of these constituents is low.

B. LOW RISK SITE CONDITIONS

Soil. 100 mg/kg TPH

The soil analytical data indicated that the 100 mg/kg action level for total organic hydrocarbons had not been exceeded.

Groundwater: Benzene - 0.005 mg/l

Ethylbenzene - 0.7 mg/l Toluene - 2.42 mg/l Xylene - 12 mg/l

Groundwater analytical results for monitoring well MW-1 indicate that BTEX constituents were not present in the groundwater. Both benzene and ethylbenzene constituents were below the laboratory detection limits. Both Toluene and Xylene, 0.00061, were desected but below the laboratory detection limits of 1.0 ug/l. Therefore, IDNR action levels were not exceeded.

Groundwater analytical results for MW-2 indicated the presence of BTEX constituents in the groundwater. Benzene, 0.168 ppm, exceeded the IDNR scion level of 0.005 ppm. Toluene, 0.0218 ppm, did not exceed the IDNR action level. Ethylbenzene, 0.0036J ppm, did not exceed the IDNR action level. Xylene, 0.175 ppm, did not exceed the IDNR action level.

Groundwater analytical results for MW-3 indicated the presence of BTEX constituents. For the October 1993 sampling period, the following analytical results were recorded. Benzene, 0.0079 ppm, exceeded IDNR action level. Ethylbenzene, 0.0029 ppm, did not exceed the IDNR action level. Toluene, 0.0006J ppm, did not exceed the IDNR action level. Xylene, 0.0006J ppm, was detected, however it was below the laboratory detection limits.

On January 6, 1994, MW-3 was re-sampled. The following analytical results were recorded. Benzene was not detected nor did it exceed the IDNR action level. Ethylbenzene was not detected and did not exceed the IDNR action level. Toluone, 0.0015 ppm, did not exceed the IDNR action level. Xylene was not detected and did not exceed the IDNR action level.

This well was re-sampled because the first round of groundwater sampling (September 1992) indicated that benzene was not detected in MW-3. This monitoring well, in addition to others, were sampled again in October 1993. Benzene exceeded the IDNR action level. Because of this inconsistency in benzene levels, this well was sampled in January 1994. Benzene was not detected during this sampling round. Therefore, benzene levels below IDNR action levels should be the norm for this well.

Groundwater analytical results for MW-4, the southernmost well, were all non-detect. Therefore, the transition zone or the "0" line has been established.

Of the four groundwater munitoring well results, only one well, MW-2, exceeded the IDNR action level for benzene. All other parameters (toluene, ethylbenzene, and xylene) have not exceeded the IDNR OA-1 action levels.

High risk conditions do not occur at this site. Please see answer to question 1 - 14, High Risk Classification, for further details of why high risk conditions do not occur at this facility.

 High risk conditions do not exist at this site. See answers to questions 1 - 14 for further information of why high risk conditions do not occur at this facility.

C. NO ACTION REQUIRED SITE CONDITIONS

 Soil -- The soil analytical data indicated that the 100 mg/kg action level for total organic hydrocarbons has not been exceeded. Therefore, no action is required for the soil.

Groundwater -- Laboratory analytical results indicate that benzene, the only petroleum hydrocarbon constituent, has exceeded the IAC action level of 0.005 mg/l in MW-2 (0.168 mg/l). All other petroleum constituents are either below the laboratory detection limits or the IDNR action levels (See Appendix X for labulated analytical data).

Additionally, the site has been classified as a low risk site. Please refer to the answers given in questions 1 - 14. High Risk Classification, for further details.

APPENDIX XIV (A3) TREATMENT TECHNOLOGY EVALUATION

This is not classified as high risk. Therefore, this section has not been completed.

APPENDIX XIV (A4) BEST AVAILABLE TECHNOLOGY

This is not classified as high risk. Therefore, this section has not been completed.

APPENDIX XIV (A4) BEST AVAILABLE TECHNOLOGY

B. Low Risk Site Correction Action

The approximate volume of contaminated groundwater present is equal to 341.93 gallons. Volume of contaminated groundwater (MW-2) = 341.93

Using the only monitoring well which exceeded the IDNR action level, MW-2, the volume was calculated. A 25' x 25' (625 ft?) area around MW-2 and a 10' x 10' (100ft?) area was anticipated to be impacted around the well. The water column height of 4 99 feet (MW-2) was used to determine the impacted volume of water around the well by multiplying the water column height by the area and dividing by the conversion factor - 7.48 gal/ft.

(conc. of benzene - mg/l) * (volume of contaminated groundwater - ft^2) * 3.785 L(gal) * (kg/190) mg) * (2.25 lbs/kg) * density of gasoline ($ft^2/0.73$ lbs) * 7.48 gal/ $ft^2 \approx$ volume of contaminated groundwater for a specific well

XIV(B2) BEST MANAGEMENT PRACTICE

 Leak detection: Leak detection activities will not be implemented for the 500gallon abandoned in place tank. All liquid material was removed from this tank and sand was put into its place. The tank was closed during August 1987.
 November 1987.

The new UST system has several leak detection monitors:

- Vapor probes in vapor monitoring wells monitored by Red Jacket RLM 9000.
- Liquid refraction sensor in the interstitial space monitored by Red Jacket RLM 9000.
- Automatic tank gauging P/N 4001955 with Red Jacket RLM 99000.
- Cathodic protection internally and externally. Tests performed 2/93 and due in 2/96.
- Secondary containment scaled concrete pad and 4-inch concrete curbing.
- Mariey Pump Company uses all the leak detection moments in conjunction
 with regularly scheduled cathodic protection checks and/or task tightness tests
 as a precautionary measure. Furthermore, four monitoring wells will be used
 to detect impact to the subsurface.
- 3. Any soil or groundwater sampling conducted by Marley Pump company and its consultant, will shide by a QA/QC document which follows or is more stringent than those required by the IDNR. Vapor analysis of confined spaces (the manhole located southwest of the facility or other openings accessible to conduct the vapor survey) will be conducted when on-site monitoring occurs.

XIV(B3) MONITORING PLAN

Monitoring Plan - Marley Pump Company's consultant will collect groundwater elevation data and groundwater samples from the four on-site monitoring wells. The elevation data will help determine the groundwater flow direction and if any directional changes occur due to seasonal changes in the groundwater elevation. These four well are located in such a way that they are consistent with the current groundwater flow direction. Data from these sampling points will help determine whether impact is occurring to the subsurface. This data combined with the calculated hydraulic conductivities will aid in the determination of migration potential. If increases/decreases to the contaminant level occur and/or changes in the groundwater flow direction occur, then recommendations for change will be made accordingly.

The Marley Pump Company will follow the IDNR's proposed monitoring schedule as suggested in the SCR. However, Marley Pump Company reserves the right to request for the reduction in monitoring (requency or number of monitoring wells if the request is justified by the following IDNR requirements:

- Migration potential of the released substance,
- Potential impact on the environment and public health if migration of the soil or groundwater contamination occurs,
- Area hydrogeologic characteristics,
- Soil permeability,
- Transmissivity, and
- Contamination concentrations and persistence.

If Marley Pump comapny or its consultant feel that the monitoring wells are not producing quality data, then modification will be made accordingly.

M&E proposes the following schedule to conduct groundwater monitoring after approval of the SCR.

Year	Quarter 1	Quarter 2	Quarter 3	Quarter 4
199-	NR	х	x	x
199-	NR	Х	x	x
197-	NR	X	x	х
199-	NR	x		х
199.	NR	x		x
199-	NR	X		x

NR - Not required by IDNR.

Each year the results will be reviewed and a determination of sampling reduction and justification will be made.

APPENDIX A SUPPLEMENTAL ENFORMATION

- I. Site History
 - C. Site Owner Chronology, Contract Agreements, Page 5 of 20

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May 11, 1971

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Benry R. Schaufer Co.

WARRANTY DEED

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GOUPHORDLENDM MORNEY and STEPHEN T	WESTERFIELD and PEGGY
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APPENDIX B SUPPLEMENTAL INFORMATION

- I. Site History
 - Describe the circumstance of discovery of the release, Page 6 of 20 Senera Environmental Service, Inc. Report

ATTACHMENT - SENECA ENVIRONMENTAL SERVICES INC. REPORT

SENECa

ENVIRONMENTAL SERVICES, INC.



Des Moines . Davenport . Omnhe



Sanaca Environmental Services, Incorporated
\$113 Trement Avenue - Developer, Iowa 52607 - (\$19) 396-2522

April 3, 1992

11 :47

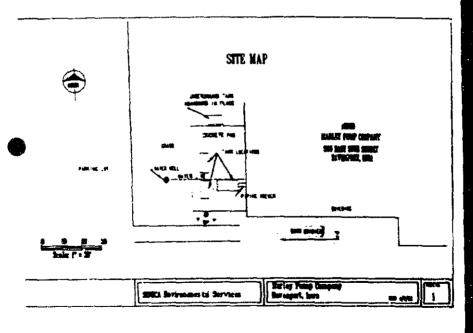
Mr. Ed Dunning Marley Pump Company 500 East 59th Street Davenport, Iowa 1280?

STBJECT: SITE INTESTIGATION FOR PLACEMENT OF UNDERGRUND STORAGE TANKS FOR MARLEY FUND COMPANY 500 EAST 59TH STREET, DAVENPORT, IOWA

Dear Mr. Dunning:

We are submitting this letter summarizing our observations of the site investigation and soil testing at the above-referenced location.

On March 18, 1992, Seneca Environmental Services performed a site investigation at Marley Pump Company in the vicinity of the proposed undergrand storage tank location. The investigation involved the advancement of enauborahole tora depthyof=25-feet and obtaining a water sample from the borehole. A representative of Seneca Environmental Services was on-site to observe the activities, classify the soils, and to obtain the soil and water samples. The location of the borehole is indicated on the attached site plan map.



Mr. Ed Dunning Harley Pump Company March 26, 1992

A soil sample was obtained from the seven-foot depth of the borehole for laboratory analysis. A water sample was obtained from the 20-foot depth of the borehole for analysis. The samples were packaged, labeled and placed in iced storage for delivery to MET Nidwest Laboraturies, Inc., located in Cedar Falls, Iowa, for analysis of berzene, toluene, ethyl benzene, and total mylenes (BTEX), for total petroleum hydrocarbons (TPH) as gasoline, and for total extractable hydrocarbons (TEM) as found in diesel fuel. A chain-of-custody form accompanied the samples from the sampling site to the laboratory. The results of the laboratory analyses are listed in the appendix of this letter.

Based upon the preliminary field work and the laboratory results for the soil and water samples, it appears that the soil in the vicinity of the proposed tank excavation is not contaminated with hydrocarbons from quasoline or diesel. The analytical laboratory results for the soil sample are below the current Iowa Department of Matural Resources (IDMR) action quidelines of 100 mg/kg (ppm) for TPH and THM. The laboratory analytical results for the water sample were found to be 610 mg/L (ppb), which is above the IDMR action quideline of 5.0 mg/L (ppb).

Mr. Ed Dunning Marley Fump Company March 26, 1993

According to the soil boring log, the soils in the vicinity appear to be stight, firm silty clays with low permeability. The bydraulic conductivity of such soils ranges between 46°cm/sec and \$10° cm/sec (Freeze, et al), with an average grain-size:s6.8.004 mm (Pettijohn, et al). Although the groundwater in the vicinity of the tank pit appears to be impacted at the 20-foot depth, the soils at the seven-foot depth do not appear to have been affected by any hydrocarbon impact. The seven-foot depth-is:slightly-helow the Gavel of the bottom:of the tank pit.

A large metal pipe runs through the tank pit excavation from a vater well located approximately 20-feet west of the site in the down-gradient direction. The pipe is approximately two-feet below the surface of the ground and is set directly in the clay soils, with no sand backfill around it. The pipe is situated at a level stove the midline of the proposed tanks and the tanks are of double-walled construction. It is not likely that this pipe will act as a conduit for any hydrocarbon migration if a leak cooms in one of the underground storage tanks. The monitoring system which will be installed will indicate any fuel loss from the tanks or lines and the leak would be mitigated before product could migrate along the pipe line.

Mr. Ed Dunning Marley Pump Company March 26, 1992

-17.5

Due to the fact that Jeneca Environmental Services has identified the presence of certain hazardous substances or contaminants, you should be aware that you have, or may have, the duty to report said findings to federal, state, or local authorities in a timely manner. Unless otherwise informed, Seneca Environmental Services assumes that said reporting has been properly completed by you.

You should send a copy of this letter to the IDMR for their project file regarding underground storage tank activities at your facility. Please send it to:

Rr. Verne Schrunk

Iova Department of Matural Resources

Undergrund Storage Tank Division
Wallace State Office Swilding, 5th Floor

500 East Grand Avenue

Des Hoines, Iova 50319.

One copy of this letter should be sent to GAS for reinbursment purposes. Please send it to:

Mr. Meil Searcy GAB P.O. Box 3837 Dm Noines, Iowa 50322. Mr. Ed Dunning Marley Pump Company March 26, 1992

1 176

seneca Environmental Services appreciates the opportunity of addressing your underground storage tank needs. If you have any questions concerning this letter or if we can be of further assistance, please give us a call.

Sincerely, Seneca Environmental Services

Tathe Mater haves

Heather Morton-Davis
Registered Groundwater Professional, #1252

REFERENCES.

Freeze, Allan R. and Cherry, John A., 1979, <u>Groundwater</u>, Prentice-Hall, Englewood Cliffs, New Jersey, 604 pp.

Pettijohn, F.J., 1975, <u>Sadimentary Rocks</u>, Herper & Row, Hew York, Maw York, 628 pp.

APPENDIX A

SOIL BORING RECORD

SENECA Environmental Services Inc.

					Hole/Hell No. BH1 Borehole diameter 7.5
Job	No. 8460				Total Gepth of Hele 25.8 feet
Geol	logist/Engineer				
	11 Crew White/Stribli				
			1		Date Completed 3/18/92
GLAIM THE LEET	MELL CONSTRUCTION DETAIL	3	3	LATRICLOSY	RESCRIPTION .
-0			_	g OL	Grass - Topsess
-2				Q.	Silty Clay, brown, no oder
-4		,	ž		Bilty Clay, slight oder, dark gray
-6			Ī		-
в					Clayey Silt. light gray, no ader
10					
-12					Clayey Silt, light brown with fine grains of send. As oder, deep
-14			Ī		•
-16	<u> </u>				
18				a la	Bilty Clay, dark gray, embedded with fine to medium grained same, no odor, damp
-so	Ţ			a a	Clay, pray-gram, set, no other
-55					
-24				d	
-56					Total Supth - 25.0 Feet
-58	1				2013 Septe - 5-0-001, 3-7-000 5-14-001 Voter Seepte - 9-000
-30	1	1			

APPENDIX B

LABORATORY ANALYTICAL REPORTS

FOR

SOIL SAMPLES



Tel. (316) 277-2401 Fac: (316) 277-2426

ANALYTICAL REPORT

Hs. Heather Morton-Davis STRECK ENVIRONMENTAL SERV. 5113 Tremont Avenue Davenport, IA 52807

03/30/1992

Sample No.: 163005 Job Number: 92.2095

Sample Description:

BOIL

S-7 BH-1 Marley Pump

Date Taken: 03/16/1992

Date Received: 03/19/1992

Parameta	•	Result	Unite	Date Analyzed/	<u>Analyst</u>
Total Ex	tractable Hydrocarbons	<10.	ug/g	03/27/1992	hlk
VOLATILE Senzene Ethylben Toluene Xylenes, Total Hy	zene	<0.5 <0.5 <0.5 <0.5 <10.	ne\a ne\a ne\a ne\a	03/24/1992 03/24/1992 03/24/1992 03/24/1992 03/24/1992	mkk mkk mkk mkk

Sample introduction performed in reference to EFA Method 5030 (purge & trap). Analysis performed in reference to EFA Method 5015 for volatile organics using flame ionization detection. (Ioua Method 0A-1, Revision 7/01/51).

Method Detection Limits: Benzene <0.5 ug/g; Toluene <0.5 ug/g; Kylenes, Yotel <0.5 ug/g; Total Rydrocarbons <10. ug/g; Ethyl Benzene <0.5 ug/g.

Extractable Hydrocarbons are extracted in accordance with EPA Nethod 1550 (sonication extraction). Analysis is performed in reference to EPA Nethod 8100 using flame ionization detection. (lows Nethod 0 λ -2, Revision 7/01/91). Nethod Detection Limit <10. ug/g

Project Names





ANALYTICAL REPORT

Ms. Heather Morton-Davis SENECA ENVIRONMENTAL SERV. 5113 Tremont Avenue Davenport, IA 52807

03/30/1992

Sample No.: 163006 Job Humber: 92.2095

Sample Description:

W-BH1 WATER Marley Pump

Date Taken:	03/1\$/1592	Dat	e Received: 03/19/1992
	Result	Unita	Date Anglysed/Analyst
VOLATILES - BTEX	(MATER)		
Zenzane	0.61	mg/L	03/20/1992 ake
Ethy lbenzene	0.25	mg/L	03/20/1992 ake
Toluene	0.29	mg/L	03/20/1992 ake
Xylenes, Total	0.25	mg/L	03/20/1992 ake
Total Hydrocarbo	ons 3.7	mg/L	03/20/1992 alte

Sample introduction performed in reference to EFA Method 5030 (purye and trap). Analysis performed in reference to EFA Method 8015 for volatile organics using flame ionization detection. (Iowa Method OA-1, Revision 7/01/91).

Hethod Detection Limits: Benzene <0.002 mg/L; Toluene <0.002 mg/L; Zylenes, Total <0.802 mg/L; Ethyl Benzene <0.002 mg/L Total Hydrocarbons <8.10 mg/L.

Tel (319) 277-2401 Fax: (319) 277-2425

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send leport to: Heather Davis Address: 5113 Tremput Ava. Davempent In 52807 relepting 8 319 - 316 - 2552							Col	100	ted	<u> </u>	1: 1	19x	<i>√</i>	1 1), //	, <i>j</i> .	250	97	
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APPENDIX C SUPPLEMENTAL INFORMATION

B Current Site Conditions

B. Description of the existing UST System, Page 6 of 20,

Operational Status of Tank No. 1: Contains no product and is out of use. The UST tank (fill lines, product lines and/or dispensers are got part of the UST system) was abandoned in place (e.g. liquid was removed and sand was place inside the tank) during the time period August 1987 through November 1987.

Operational Status of Tanks 2, 3, and 4: Three new USTs were installed in March 1992 for Marley Pump Company's Engineering Lab. The tanks are constructed of double walled steel (Stip3) and have a factory coal tarepoxy coating. Each tenk has a capacity of 560 gallons. Tank 2, Registration Number 16157, stores 532 gallons of unleaded gasoline and Tank 3, Registration Number 16158, stores 532 gallons of unleaded gasoline. Tank 4, itegistration slumber 16159, stores 76 gallons of unleaded gasoline and 432 gallons of methanol. The tanks were filled on October 5, 1992. All the USTs are operational but no fuel is dispensed; the fuel is recirculated back to the tank. Addition information of interest:

- Vapor probes are in each vapor monitoring wells (monitored by Red Jacket/Marley) - RLM 9000.
- Liquid refraction sensors in the interstitial space between tank walls -RLM 9000
- Automatic tank gauging. Hard copy printed and retained for Marley's records.
- Internal and external cathodic protection. Cathodic protection test was conducted in February 1993 and is scheduled to be tested again in February 1996.
- Tank opping is above ground and surrounded by a sealed concreted pad and four-inch concrete curb.

APPENDEX D SUPPLEMENTAL INFORMATION

HYDRAULIC CONDUCTIVITY - FIELD AND LABORATORY

$$K = \frac{R^2}{2L(T(2)-T(1))} + \ln\left(\frac{L}{R}\right) + \ln\left(\frac{H(T(1))/H(T(0))}{H(T(2))/H(T(0))}\right) \quad \text{EQUATION (1)}$$

WHERE:

K = HYDRAULIC CONDUCTIVITY

L = LENGTH OF WELL SCREEN

R = RADIUS OF WELL SC

T = TIME IN SECONDS FROM START OF TEST

H = DIFFERENCE IN WATER HEAD BETWEEN WATER LEVEL AT TIME 'T' AND THE STATIC WATER LEVEL

1) MONITORING WELL MW-1

$$K = \frac{(0.08)^2}{2 \cdot 12.18(12,600 - 3,600)} \cdot ln(\frac{12.18}{0.08}) \cdot ln(\frac{0.31}{0.06})$$
 EQUATION (2)

$$K = 2.59 \times 10^{-7}$$
 Afrec EQUATION (3)
 $K = 7.88 \times 10^{-6}$ conject $K = 7.88 \times 10^{-6}$ m/sec = $(a.74 \times 10^{-6} \text{ m}) da_{H_0}$
 $T = 2.86 \times 10^{-6} \text{ m}^2/\text{sec}$

2) MONITORING WELL, MW-2

$$K = \frac{(0.08)^2}{2 \cdot 7.18(9,000 - 3,600)} \cdot \ln\left(\frac{7.18}{0.08}\right) \cdot \ln\left(\frac{0.30}{0.14}\right)$$
 EQUATION (4)

$$K = 3 \times 10^{-7}$$
 Alesc EQUATION (5)
 $K = 9.3 \times 10^{-6}$ confect $E = 9.3 \times 10^{-9}$ m/sec $= 6.04 \times 10^{-2}$ m/sec
 $T = 2.2 \times 10^{4}$ m/sec

3) MONITORING WELL MW-3

$$K = \frac{(0.08)^3}{2 \cdot 11.6(9,000 - 4,800)} = \ln \left(\frac{11.6}{0.08}\right) = \ln \left(\frac{0.41}{0.29}\right)$$
 EQUATION (6)

$$K = 2.6 \times 10^{-7}$$
 Meso EQUATION (7)
 $K = 7.9 \times 10^{-4}$ cm/sac = 6.55 $\pm 10^{-3}$ m/day
 $T = 7.33 \times 10^{3}$ m²/sec

Metralf & Bidy Hydroxile Conductions

90257-46

Boring # 1/W-2 Depth 25-26*

Descriptions

187

CL Gray groce altry seedy loss day with trace organics

w 19% 7, 111.1 puf G' 2.69

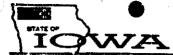
Hydraulic Conductivity:

1.5 x 10° cm/sec

@ hydronic gradient = 6

Tested in accordance with ASTM D 3084-90.

The data gathered for this sample was collected from a Shelby tube. The seil was collected from MM-2, below the silt strata.



Fin Name &CTS B 4

TERRY C. SRAHSTAD, GOVERNOR

1188

DEPARTMENT OF NATURAL RESOURCES

THE KOKA & & ME

TRANSMITTAL FORM

CERTIFIED No. P842120717

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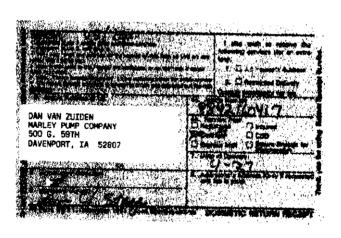
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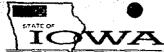
Parts: 4-35-94

Enclosed or attached is the following:

No.	Potyda
	3-20-74 SCRAW WHEN
	SCK CHIKGIL

As requested Review and comment	Please return As noted below
REMARKS:	





ERRY E. BRANSTAD GOVES

CERTIFIED MAIL

March 36 1994

Bob Best Marley Company 1900 Shawnee Mission Farkway Mission Woods, KS 66205

DEPARTMENT OF NATURAL RESOURCES LARRY J. WILSON, DIRECTOR



SUBJECT: Revised Site Cleanup Report Review - Marley Pump Company

1500 East 19th Street, Davenport, IA

Tank Registration No. 7910056 LUST No. 8LTS84

Dear Mr. Best:

The department has reviewed the revised Site Cleanup Report (SCR) for the referenced facility. DNR received the report November 5, 1993. Upon review, it has been determined that the SCR is unacceptable. have enclosed the checklist which identifies the areas requiring additional investigation or clarification. Your consultant, has received the copy of the checklist and can assist you in completion of the SCR. As additional information is obtained, any sections of the SCR which are affected must also be updated to reflect current knowledge and conditions.

Within ninety (98) days of receipt of this letter, please submit a revised SCR with the corrections and additional information indicated on the obecklist.

Please notify the department, in writing, if you are unable to meet the above schedule. Provide the reason for the delay and a firm date by which the department will receive the report. In all correspondence regarding this project, include the LUST number which can be found in the Subject heading of this letter. Contact Verne Schrunk at 515/281-6704 if you have questions or we may be of assistance.

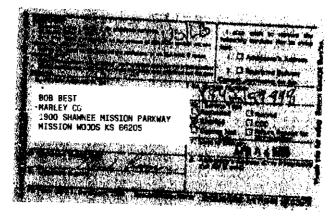
Sinterely.

VERNE K. SCHRUNK ENVIRONMENTAL SPECIALIST UNDERGROUND STORAGE TANK SECTION

VKS/vks/8584REV.2

Metcalf & Eddy, 10007 W. 67th Street, Kansas City, MO 64152 attn: Denise Story

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Ceder Fells Division 704 Enterprise Drive Ceder Fells, M. 50813 Tel: (318) 277-2401 Fex: (319) 277-2426

ANALYTICAL REPORT

Denise Story METCALF & EDDY, INC. One Pierce Flace Sulte 1500-W Itasca, IL 60143 708/775-0300 01/12/1994

NET Job Number: 94.00104

MET Sample Bumber: 236572

Collected by: Hite Dust

Collectors Name So.: 786/775-0000

July Description: PROJECT 4010195-0005 - BANGMARY, 1046

Sote Tokon: 01/66/1994

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MOLATILES - STEN (MIZZE)								
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Ethylbonzone	<10	ug/ L	ĿJŧ	01/16/199L	9-6015/1A-QL1	2.0	14p/L	Weter
Teluere	19	ULA.	t ft	01/14/1994	B-COMPLA-GAT	2.0	46/L	Motor
Mytenes, Total	<18	WEAT.	Ljt	91/14/1994	8-4015/14-4k1	2.0	48/ L	Weter
fotal Typrocurture	12	Reg/L	kje	91/13/1994	9-0015/3A-0A1	9.30	mg/L	Mater

MUTT: Sample contains 2 large non-target posts which required in elevated reporting (inits,

All results are calculated on a use selfat basis. Experting Lists are naturally matrix dependent and may not alongs be achievable. Earl to fines: 2 of Christologica does not metch pending (50-1 only) 8 of Stark bit for this company Units: mpl = pen upfs = mpfs = mpfs = pen upfs = pe

> R. L. Bindert Operations Manager



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																100	- 4
					\vdash	+				-	+		-	+-		4	
			BOTTLES INTACT? Y FIELD FILTENED? YE OGAL: FETURN BA	B/NO PLE REMA		TO CLIES		FREE	F MEAL	2BPA S	£7 YEI		L 	<u> </u>	TEMPERATURE DE		
AL Dut clocktige			ANCHAR	T TO DISPOSE OF ALL SAMPLE REDIAINDER					The accumulation of the second					Tall			
METHO		AMMAND: AND 473 337 7154															
		ME E SIMO	<u>- </u>	<u> </u>			ITE PTE-1		_		LOW I	71-040		277 - PAGE			

II. Current Site Conditions

Hag	sufficient	information	been	provided	on	the	following?
-----	-------------------	-------------	------	----------	----	-----	------------

- A. General description of site gaology Y H 1 2
- B. Description of all existing UST system(s) at each and out of service.

 Are all USTs removed from the site.
- C. Verify whether tank / line rightness tests were required by the IDNF file search required.

Required

If required: Using a copy of the latest tank/line tightness test, complete Table II-C

Appendix 1 - "Tank Line Tightness Testing Results"

Is a complete copy of tank: line tightness test, including all supporting data provided?

Is the method used approved by the USEPA and/or the IDNR for the conditions and tanks located at the site! Has third party certification been provided;

Are the conclusions justified by data presented?

Are explanations of testing anomalies provided?

If corrective actions were initiated or repairs necessary, is a description of actions provided?

D. Topographic Site Map (Appendix 2)

Is a <u>legiple</u> topographical map, with contour interval less than or equal to 10 feet, provided showing the sate and surrounding area?

Scaled Site Plan (Appendix 3)

Is a scaled site plan provided showing the mite and immediate murrounding area?

Does the diagram provided allow the location of all existing and removed USTs, product lines, and dispersers, and pertinent site features, such as roads, buildings, vells, waterways, ainkholes, etc.?

Normation states TTT ms - let methods but are not.

Tush llatron listential distribution of the terms of the

. .. .

N 1 2 3

Y W 1 2 3

î p

Y N 1 2

P.	Scaled Site Vicinity Map					
	Are the names and addresses of owners whose property is or is likely to be affected by the sovement of contamination provided? (Names provided must correspond to information on the "Scaled Site Vicinity Map")	Y	ĸ	1		 Š
•	Appendix 4 - "II(F) - Scaled Site Vicinity Map"					
	It a completed scalad site map (1°= 200 to 500 ft) provided showing general area features and locations of adjacent properties which are or may be affected by contamination movement?	¥	N	3	2	3
	Doer the map provided show all pertinent site features, including locations of buildings, roads, waterways, sinkholes, etc.?	Ā.	N	1	2	3
XXI	. Soil Sampling Mathods & Findings					
A.	Boring number and placement - Has a reasoned explanation been given to justify the number and placement of soil borings.	Y	N	1	2	3
	Does the rationale for borshole placement allow for sufficient information to be collected to determine the vertical and horizontal extent of contamination and the transition some(s) between areas that are and are not contaminated.	Y	'n	1	2	ë
	Is the rationals justified based on engineering, geologic, or hydrogeologic principles.	γ	•	, (2	3
B.	Soil Boring Logs (Appendix 5)					
	Note: Borings completed after March 5, 1992 must be logged on DNR Form 542-1392 or equivalent					
	Is a separate soil boring log provided for each borehole placed?	Ŷ	ĸ	1	2	3
	Are the boring logs completed with the information as required on DNR form 562-1392?	ÿ	N	1	2	3
	Is at least one (1) water level observation recorded with time, date and water elevation (ASL) for each boring log?	•.				
	mounta tolt:	Y	М	1	2	3

 $z^{(0)} = z \cdot z^{(0)} \cdot z^{(0)}$

c.	Prevention of cross-contamination: Are the actions taken sufficient to prevent cross-contamination between boreholes during installation and sampling procedures?		Ŷ)	H	1	2	3
D.	Vapor Equipment: Has a list been provided itemizing various vapor equipment used (if any), description of its use and an evaluation of the conclusions drawn from the vapor results and calibration procedures?						
			Y	N	1	2	3
	Calibration chart - Are daily calibration measurements noted for each vapor instrument used		Ϋ́	Ħ	ي و دري (دري	1800 p	State of the state
E.	Soil ample collection: Has a description been provided of soil sample collection methods and a reason for its use in obtaining representative samples.		Y)	N	á	2	3
	At a minimum, were soil samples collected at 5 foot intervals or at points indicated by high vapor readings.	· 1 ~	Y	, , ,	, , 1	P4 - 5	,
			1	N	1	2	3
				2000	1881		, c. 6
₽.	Soil Contemination Plume Maple) (Appendix 6)				۲.	ı	
	Do the woll contamination plume map(s) depict the full extent of vadose zone soils which exceed the IDNR corrective action limit of 100 ppm total		1				
	organic hydrocarbons?		¥	Ñ	1	2	3
	Are the maps adequately labelled with each boring numbered and soil contamination concentration for each boring noted?		Y	ħ	1	2	-
	Hand on all 1			5 1. T	7	•	3
	Based on the location of soil borings and the boring logs provided, are the limits of contamination	, .· .		. 4			
	identified justified by scientific principles?	.* 8	¥	H	1	2	3
	Have the boring(s) used to determine bydraulic						
	conductivity been identified?		A,	И	1	2	3

IV. Growsbater Semiling Mathods & Findings

A. Boring number 4 placement: Is a reasoned explanation given to justify the number and placement of groundwater monitoring wells?

Does the rationals for monitoring well placement allow for sufficient information to be collected to determine the <u>vertical</u> and <u>horizontal extent</u> of Contamination, site stratigraphy, and the transition rome between areas that are and are not contaminated.

Is the rationale justified based on engineering, geologic, or hydrogeologic principles.



B. Monitoring Well Construction Diagrams (Appendix 7)

Hote: Monitoring wells installed after March 5, 1992 must be logged/described using IDNR Form 542-1392.

Is there a separate monitoring well construction diagram completed for each well installed at the site and in the general area?

Do the monitoring well construction diagrams provide sufficient information regarding the construction of each well (See Section IV-C)?

Are water level observations recorded that verify a stabilized level? Has the well been allowed to stabilize?

Is the static water level indicated with the symbol " $\underline{\mathbf{y}}$ "?

Is the static water level within the acreemed interval of the monitoring well?

C.	Description of Permanent Momitoring Well Construction
	Are the following aspects of the well construction
	provided in a clear and concise description?
	(i) mathed of cleaning well components prior to

- method of cleaning well components prior to installation
- (2) casing and screen material, diameter and length
- (3) screen slot size
- (4) how sections of casings and screens are connected
- (5) method used to install filter pack and seals,
 (6) actions taken to prevent cross-contenies of
- (6) actions taken to prevent cross-contamination of wells during construction and sampling
- (7) procedures to develop monitoring wells

¥	N	1	2	3
Y	N	1	2	3
Ÿ	Ŋ	1	3	3
Y	N	ړ	2	.3
1 -	,			

D.	Temporary Monitoring Wells: Has a description or explanation been provided describing the type and use of temporary casing and screens in the borsholes used as temporary wells?	J.	Y	Ħ	1	2	3
	Is an adequate explanation and justification provided on the procedures used to develop the wall to ensure a representative groundwater sample?	KŞ.	Y	8	1	2	3
B .	Groundwater Sampling Methods: Hau an adequate explan- ation and justification been provided for Getermining the adequacy of the groundwater sampling and well purging methods?		Ŷ .	H	1	2	3
7.	Groundwater Data for Contour Map Development: 1s a table provided which indicates, at minimum, the following information? 1. We31/Boring number 2. Date measured 3. Static Mater Level (ASL) - nearest 0.01 ft 4. Water level correction for Free Product, if required.		<i>(</i> :\				
•	5. Ground Surface Rievation - nearest 0.1 ft If the water level was corrected due to presence of free product, was a statement provided describing the Correction method?		(Ý)	n	1	2	3
	Has a description of the benchmark used to survey for groundwater surface elevations been provided?		 . <u>¥</u> `	n	1	2	3
	Is the benchmark used tied in to a USGS or other geoditic datum?		Y	# ·	1	2	3
G.	Groundwater Contour Map (Appendix 8)			*			
	Does the Groundwater Contour Map provide information us to monitoring well locations, groundwater elevation points, groundwater contour intervals, and groundwater flow direction (noted with an arrow)?		(Y)	l⊶e(N	1 de	جسريا) 2	law Laut Ladi entew
	Are the wells used to determine hydraulic			•		-	•
	Conductivity identified on the map?		Y	H	1	2	3
	If necessary, are separate groundwater contour maps provided to describe groundwater movement and flow direction in different aquifers?	ار فائغ) y	Ħ	1	2	3

- H. Has a description and explanation been provided on:
 - the methodology and device used to determine static groundwater levels - identify instrument used.
 - the accuracy of the method used to determine uroundwater levels.
 - 3. groundwater flows and/or anomalous water levels.
 - fluctuations in water levels, with special emphasis on those which may alter groundwater flew directions.
- I. Groundwater Contemination Plume Hape (Appandix 9)

Do the groundwater contamination plum: map(g) depict the full extent of free phase product and dissolved phase contamination exceeding the department's groundwater corrective action limits and are the iso-concentrations of groundwater contaminants noted within the plume?

If necessity, is a separate groundwater contaminant plume map provided for each contaminant which exceed's the IDNR's corrective action limits?

Is each data point adequately labelled as to NW # and contaminant concentration?

If applicable, is a map provided which depicts the full extent of free product and depth of product?

Based on the number and location of data points/ monitoring wells provided, are the diagramed limits of contamination justified?

Has the "transition some" between adequately defined?

V. Sampling Quality Control

Has a statement been provided that indicates that the QC/QA procedures used are at least as stringent as those of the IDNR's LUST QC/QA plan.

X I	Everyonalogic Cross Sections (Appendix 10)					
	Are the Hydrogeologic Cross-Sections or three- dimensional diagrams stratigraphically correct as interpreted from the soil boring logs?	, Ŷ ,	N	1	2	3
	Do the cross-section diagrams provide detail of the following:	,				
	Identification of types and characteristics of the geologic materials present?	Y	Ħ	1	2	3
	Identification of contact rones between different geological materials, noting areas of high permeability and/or fracture?	¥.	ĸ	1	2	š
	Location of boreholes, noting depth of termination and zone of saturation?	(*	И	1	2	3
YII.	Bydraulic_Conductivity					
À	Has the hydraulic conductivity been determined?	Y	H	1	2	3
	Has a statement been made identifying which boring(s) and/or wells were used to determine the hydraulic conductivity?	. ₹.	N	1	2	3
	Have the data and celculations used to determine hydraulic conductivity been provided?	Ž,	Ħ	1	2	3
19.	Has the method used to determine hydraulic conductivity been identified	Ý	ы	1	2	3
τ	If in equivalent method (other than the Bouwer-Rice method in saturated soils or the Guelph permaneter in unsaturated soils; was used, was the accuracy and appropriateness evaluated?	(F) A	n	1	2	3
t.	Has an explanation been provided on why the location/ number of data points used for determining hydraulic conductivity is representative of the conductivity at the site?	(x)	R	1	2	3
	Values and h De reported					

in m/day

VIII. Receptor Survey (Appendix 11)

-	A TOPPOSE TO						
A.	Ham a map been provided, with an appropriate scale to adequately show all surface water bodies within 1000 fest of the petroleum contaminated area?		Ý	В			
	Has the potential impact to the surface water been adequately investigated?		(x	N	1	2	3
	If water samples and/or soil samples have been collected, has a statement been provided on sample collection and analysis methods?	P.F	Y	N	1	2	3
	Has a narrative summary been provided to evaluate the potential for hydrogeological connections between the contamination and the surface water?		Ŷ	n	1	2	3
₿.	Has a map been provided, with an appropriate scale to adequately show all utility conduits within 200 feet of the petroleum contaminated area?		Y	Ŋ			٠,
	Has the potential impact to the conduits been adequately investigated? .		Y	N	1	2	3
	Has a detailed statement of investigation procedures been provided, which should include identification of all soil and or vapor sample locations?		¥	N	1	2	3
	Has a narrative summary been provided on the investigations conducted to decemains if the vapors are present in confined spaces and/or in occupied structures?		¥	и	1	2	3
	Has a marrative summary been provided to evaluate the potential for hydrogeological commoctions between the contamination and the conduite?		Y	N	ı	?	3
	Haw a tabulation of all conduits and confined spaces been provided, which identify the type of conduit or confined space, conduit backfill material, slope of conduit and trench, and relationship to groundwater level?		¥	N -	1	2	3

Are the locations of all active, abundoned, and plugged groundwater wells within 1006° of the petroleum contaminated area provided? Has an on-site survey been conducted within a 300° radius of the site?

Are copies of available well logo and the names and addresses of well owners provided for identified wells within 1000 feet of the contaminated area?

χ n

D,	Has a marrative summary been provided to evaluate any potential groundwater barriers (i.e foundations, structures, parking lots, roads, etc.) which may	, ,⊲ ,⊲				
	have an impact on the movement of contamination?	¥	N N	1	2	3
	Has a explanation been provided on the significance					
	the identified barriers as related to the					
	hydrogeologic conditions present at the site?	Y	Ħ	1)	2	3
IX.	Bealth & Safety Flon					
	Has a certification been presented which verifies					
	that the On-Site Health & Safety plan conforms to	~				
	applicable OSRA requirements?	Y	N			
X.,.	.Tabulation of Amalytical Data					
A.	Soil Analytical Data Information: has the table					
	on page 15 been completed using the soil sample					
	analytical data obtained during this and all					
	previous investigations for each Scil boring or NW?	, X , j	N	1	2	3
В.	Groundmater Analytical Data Information; has the table on page 15 been completed using the groundwater analytic data obtained during this and all previous investigation					
	The list should be chronological and list each well sequentially	Y	Ħ	1	2	3
c.	Do the tables provided and the laboratory data sheets (* Appendix 12) agree?	ŵ	N	1	2	3
		,		-	•	~
	Have copies of All analytical data sheets been provided?	Ý	N	1	2	3
	1150 210 met 1 160	r 70 s	-) i=			
X1.	Proc Product	7	7	-72		₹
Α.	Has free product been identified at the site?	Y	(A)		-	-
В.	If yes, is the date indicated when the "Free Product Removal Report" was submitted to the department?	٠ (بالا	Ħ			
Ç	Is a norrative provided which discusses the status and effectiveness of the free product removal					
	system in relation to the hydrogeologic conditions at the site?	Y	Ħ	1	2	3

XII. Contamination Source

A. Has the source of contamination at the site bean identified?

**N 1 2 3

**Aggreedix 13 - Off-Site Contamination Source Support Data

**Has sufficient evidence, including analytical data and maps showing potential off-site sources and groundwater flow direction, been provided to justify the conclusion that the contamination at this site is due to an off-site source?

**Y N 1 2 3

MILL SATE RISK CLASSIFICATION

Questions for evaluating if an adequate investigation has been completed to properly determine site risk classification. Justification MUST be provided, for each response, in Appendix 14.

- A. JUSTIVICATION FOR HIGH RISK
- 1. Bensene in occupied structures:
- File review: Are there documented reports of fumes or vapors in occupied structures in the immediate area?. If yes, has an adequate investigation taken place to determine if the TLV-TWA for bensene in occupied structures exceeds or is likely to exceed 10 pum in an 8 hour period? If yes, is the method of analysis and all supporting laboratory data provided? Has an appropriate justification been provided to determine risk classification? Combustible Games in confirmd spaces: File review: Are there documented reports of fumes or vapors in structures, becaments, sewers, utility conduits or any other confined space in the immediate area?
- b. If yes, has an adequate investigation taken place to determine if the concentration of combustible gases exceeds or is likely to exceed 10% of the LEL?

Ċ.	If yes, is the method and instrument used for analysis identified?	(14)	Y	Ħ	1	2	3
đ.	Has an appropriate investigation been performed to evaluate the potential of combustible gases to collect in confined spaces in the petroleum contaminated area?		Ē	_			
3.	Surface mater criteria:	•	Y	Ħ	1	2	3
4	File review: Are there documented reports of						
	Nurface water quality violations suspected to be from the petroleum contamination at this site?		¥	(II)			
ъ.	If yes, has an adequate investigation taken place						
	to determine of the contamination at this site exceeds or is likely to exceed the water quality						
	standards contained in Subrule 56761.3(455B) of	144					
	the IAC?	H/A	¥	H	1	2	3
۴.	Has an appropriate investigation been performed to						
	evaluate the potential of contamination migration						
	to exceed the water quality criteria standards						
	outlined in Subrule 56761.3(455B) of the IAC?		Ŷ	14	1	2	3
٠.	PVC Drinking Water Line:						
B.	File review: Have there been any reports indicating						
	that soil contamination may be in contact with a						
	utility trench containing a PVC drinking water line			L.			
	in the area of petroleum contamination?		¥	R			
b.	Has an adequate investigation been conducted to						
	determine the extent of soil contamination which						
	exceeds the corrective action limit in the vicinity	75					
	of the PVC line?	9/1	¥	H	1	2	3
c .	Is the rationals for the response indicated						
	(High risk or No) supported by maps and analytical						
	data?		Y	Ħ	1	2	3
5.	Otility tranches:						
				100			×20
A	File review: Have there been any reports indicating				100	10.6	P. W. C.
	that contamination which exceeds the corrective action	מ				* * * * * * * * * * * * * * * * * * *	, IM
	limit, as contained in Subrule 557-135.8(8) of the Li is in contact with a utility trench?	MC,		_		111	1 mm
			Y	Ħ.			@ 14.1
ъ.	Has an adequate investigation been conducted to						6.61
	Sefermine the extent of soil and/or proundwarer						
	Contamination which exceeds the corrective action			_			
	limit in the vicinity of the utility conduite?		Y	(10)	1	2	3
с.	Is the rationals for the response indicated						
	(High tisk or No) supported by maps and analytical						
	data?		Ŧ	(M)	1	2	3
				•		-	-

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4.	File review: Have there been any reports indicating that contamination is present at concentrations which is causing or is likely to cause physical demage to a utility conduit or structure?	Y	M			
b.	If yes, has an adequate investigation taken place to determine if the contamination is causing or is likely to cause domage to the utility structure?	, A	'n	1	2	3
c.	Is the rationals for the response indicated (High risk or No) supported by maps and analytical date?	Ý.	N	1	2	3
7.	Soil contamination (above CAL) within 1900 ft of an active wall:					
۵.	Has soil contamination been identified at the site?	Y	· M ,			
b .	Are there any active groundwater wells, regardless of use, located within 1000 feet of the area of contamination?	Ÿ	N	. '	2	3
c.	Is the rationale for the response indicated supported by maps and analytical data?	v	N	3.	2	3
đ.	Does the retionale provided outline sufficient evidence to justify the response indicated?	Y	N	1	2	ÿ
•.	If classified as High Risk, has evidence been provided to justify that the site be reclassified as Low Risk?	Y	x .	1	2	3
8.	Soil contemination (above CAL) in contact with protected groundselve source or groundselve source used as a public or private water source:					
۵.	Has soil contamination been identified at the site?	Y	N	λ	2	3
þ.	Has the seasonal high water table been identified?	Ŷ	ĸ	1	2	3
c.	Is the groundwater aquifer a protected groundwater source or a groundwater source used as a public/private water source?	Y	ĸ	1	2	3
٥.	Is there sufficient evidence to justify the response indicated (i.e High Risk or No)?	Y	ņ	1	2	3
•.	Is the rationale for the response indicated supported by maps and analytical data?	Y	Ħ';	1	2	. 3
9.	Raret topography or area of fractured limestons:				,	
۸.	Based on site or areal geology, is this contamination some located within an area of fractured carbonate hedrock or in an area of karst topography?	Y	Ņ.	1	7	1
701	N/III 14		21 2240	- /		

age to utility conduits or structures:

				• • • •	1.07	
È.	If yes, has this site been classified as high risk?	¥	M	1	2	2
c.	Has documentation been provided to indicate that this site may be reclassified as Low Risk based on the factors outlined on page 17 of 20. Section A., no. 9.	Y	्रे से	1	2	3
10.	Private or public water supply:					
a .	Are there any public or private water supplies located within the vicinity of the petrolaus contaminated area?	Ý	и	1	2	3
b.	If yes, has an adequate investigation taken place to determine if the contamination is affecting or may affect the water supply areas?	Y	į,	1	2	3
¢.	Has a public or private water supply been or likely to be impacted by contamination to the extent that an NCL is exceeded, or in the absence of an NCL, and Action Limit is exceeded?	 ¥	N.		2	₹# *
11.	Protected groundwater source:					
a .	Has the groundwater at the site been impacted by contamination to the degree that an MCL or sction level has been exceeded?	· Y :	N	1	2	3
Ŀ.	Has the groundwater been defined as a protected groundwater source?	Y	19 .	1	2	3
c .	If no to (b), has sufficient evidence, including analytical data (i.e., TDS), been provided to support conclusion?	ŕ	n	1	2	3
12.	Enn-made structures:	Y- 2	• , •			
*	Are there any natural or man-made conduits located within 100 ft of the contaminated groundwater plume which could allow the vertical or horizontal migration of petroleum contamination to a protected groundwater source that is used as a water source?	Y	ji)	1	2	3
b.	If yes, has an adequate investigation taken place to determine if the contamination is migrating or is likely to migrate to the toward the protected groundwater source?	Y	ĸ	1	2	3
13	Public of private water source:					
•	Has the groundwater been impacted by petroleum contamination?	Ą	M			
ъ	Is the contaminated groundwater plume within 1000 ft of an active public or private water source?	Ŷ	ŭ	1	2	3
Ľ.	If yes, has evidence been provided to justify that the site be reclassified as Low Rizk?	¥	A C	1	2	3
1	PAGE 15		RAV.	7/1	993	

a .	Is there a minimum of three meters (9.75 ft) of uncontaminated soil, free of discontinuities, with a hydraulic conductivity of less than or equal to 10 meters/day, between the contamination sone and a protected groundwater source or a groundwater serving as a public or private water source?	¥	N.	1	2	3
b.	If yes to (a), has sufficient evidence been provided to support the etatement? $f^{\prime\prime}$	¥	N	7	?	3
¢.	If classified as High Risk, has evidence been provided to justify that the site be reclassified as Low Risk?	Y	×	1	2	3
B,	LOW RISK SITE COMDITIONS					
1.	Does the soil TOH concentration exceed 100 mg/Kg or does the groundwater contaminant concentration exceed the MCL or an Action Limit?	¥	p			
2.	If yes to 1, do High Risk conditions exist at the site?	Y.	N	1	2	3
3.	Do High Risk conditions \$7, 9, 13, and/or 14 exist at the site?	Y	Ħ			,
4.	If yes to 3, has sufficient evidence been provided to support conclusions to reclassify as low risk?	¥	'n	ì	,	3
c.	Bo Action Required Site Conditions					
or list of MCL, risk	the SCR show that soil TOH concentrations are equal to less than an MCL and that the groundwater contamination equal to or less than an MCL or in the absence of an , are equal to or less than an action level and high t or low risk conditions do not exist and are not sly to occur?	Y	'n	1	2	3
Do (t	HIGH or LOW Risk conditions exist at the site?	Y	ĸ	1	2	3
KIY	Contractive Action Resource					
A.	High Risk Site Currective Action Recummendations					
1.	Have the following bean identified for the petroleum con	tamine	ed ar	RB :		
٨,	Vadose zone soil contemination?	Y	N	3	2	5
b.	If yes to la., has the approx. volume of contaminated soil been determined?	Y	Ń	1	2	

	provide prime potroides product in the groundstatt	N.**	M.P	يس أن	1	LINE ALLEN
a.	If yes to lc., has the approx, volume of contaminated groundwater been determined?	₹,	M	1	2	3
6 .	Free phase petroleum product present?	¥	3	1	2	3
f.	If yes to le., has the approx. volume of free product been determined?	e P	¥	1	2	3
2	Nave at least two (2) applicable treatment technologies been proposed?	¥	: Ni	1	2	3
	Appendix 15 - "XIV (A3) - Treatment Technology Evaluation	G "				
4	For each applicable treatment technology (minimum 2), ha of the following been identified and/or evaluated? 1) Identification of treatment technology 2) treatment method effectiveness 3) reliability 4) site characteristics 5: environmental, public health, and safety benefits and/or disadvantages 6: costs Appendix 16 - "XIV (A4) - Best Available Technology (BAT Has the BAT boen identified? Has a in-depth evaluation, detailed justification, and explanation for selection of the treatment been provided?	/ U	H	1 1	2	and factors 3
•.	Low Risk Site Corrective Action Recommendations					
1	Have the following been identified for the petroleum con	ntamina	ted a	rea:		
ta.	Vadose zone soil contamination?	Y	M	4	2	3
b.	If yea to la., has the approx volume of contaminated a been determined?	oil Y	M	ĩ,	2	3
τ.	Dissolved phese petroleum product in the groundwater?	Ŷ	*	1	2,	. 3
đ.	If yes to it, has the approx. volume of contaminated groundwater been determined? Michol questionable: Universeller		n	(3)	2	3
ę	Free phase petroleum product present?	Y	ú	1	3	3
f.	If yes to le., has the approx. volume of free product been determined?	(p10) x	Ħ	1	2	3

Appendix 17 - "XIV (B2) - Best Management Practice"

Has a detailed "Best Management Practice" plan been provided which discusses the items listed on Page 20 of 20 of the SCR format, Section 8(2)?

Appendix 18 - "XIV (B3) - Monitoring Plans

Has a monitoring plan been provided which outlines the number and locations of monitoring sites, and is the plan commistent with expected contamination migration patterns?

If soil contamination only, does the Monitoring Plan and Best Management Practice allow for the determination of the following:

-) movement of soil contamination?
- 2) a measurable decrease or increase of contaminant levels in the soil?
- 3) an impact to the groundwater?

Does the monitoring plan meet the frequency recommended?

Additional Comments:

All appendices are to be placed a end of 50k in the appropriate ander.

It arrivers/information counsed be placed within the spin provided in the SCK proper, the experienced answer/inforthald be placed in an appendix to reinheard in appendix to reinheard in appendix to reinheard in

Old contermin. and adequately clothers, especially to E +5. It sit were low risk - wishing wells core not adequate to manifor movement of pure or (house) in concerning trans.

SCR SUMMARY SHEET

(Sheet 1 of 2)

. 4 4	``#` <u>`_</u> *``\^	TANK RESISTRATION # 1910056
SIT E	HOUSE TO BULLY FINE PO.	SITE ADDRESS 50 E. 59" ST DAVENPORT
ievi	6 CATE	REVIEWER
	PLUME DEFINITION	
	A. SOIL (Circle) Defined	Marginal Unacceptable N/A
	Is additional work required? Yes	No
	Passan	A PENSON DESCRIPTION DIFFER LA
	B. GROUNDWATER Defined	Marginal Unacceptable N/A
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CHECKLIST FOR THE SITE CLEANUP REPORT (SCR)

The following guidance document is used to evaluate Site Cleanup Reports submitted to the department for review. Additional comments are written, if necessary, in the margins referencing the area of concern.

The following questions, der sed from the SCR document, are to be answered based on the information presented in the SCR. Responses may fall into the following categories:

Y - Yes. Information provided meets the qualifications as indicated or presents the correct information.
N · No
3 - Information is inadequate
2 - Information is inaccurate
3 - Information is missing
MA - not applicable
LUST NO
FACILITY NAME CITY 10 24 10 10 10 10 10 10 10 10 10 10 10 10 10
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MAS THE SITE CLEARUF REPORT (SCR) BEEN COMPLETED USING THE POWNAT PROVIDED OR A FORMAT DESIGNATED BY THE DEPARTMENT?
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SITE CLEANUP REPORT CHECKLET

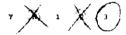
Title Pece

Arm the following entries correctly completed:

ı.	LUST Number	Y	ห	1	2	3
2.	UST Registration No.	¥	N	1	2	3
3.	Site Name	Y	n	1	2	3
4,	Site Address (complete)	Y	R	1	2	3
5.	Responsible Party - Name	Ý	Ħ	1	2	3
6.	Resp. Party - Address (complete)	Y	N	1	2	3
7.	Submittal Date	Ý,	N	1	2	3
8.	Site Risk Classification	¥	N	1	2	3
9.	Name / Sign. of Groundvater Prof.	Y	N.	1	2	3
10.	Name / 84gn, of Resp. Party	Ŷ	ĸ	1	2	3

Impendious Check-off Sheet

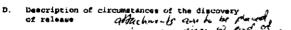
Appendices Check-Off Sheet be completed? Verify that all Appendices checked are in report.



I. Pite Bistory

Mave the following been properly identified? (Verify thru UST database/written file)

- A. Date of petroleum release discovery N = 1 = 2 = 3B. Date petroleum release reported to IDNR N = 1 = 2 = 3
- C. Site Owner Chronology all information must be provided with no chronological gaps (the listing should include all periods of time when petro products were used or sold at the site)



R.	Description of	initial action	noverices he taken to	φ≥ eurei abatu	SCK
	petroleum rele	450			

X N	1	2	3

Y	ĸ	2	2	3

Metcaif & Eddy

November 4 1993

Mr. Vern Shrunk, LUST Coordinator Iowa Department of Natural Resources Wallace State Office Building Des Moines, Iowa 50319

Site Cleanup Report (SCR) The Marley Purrill Company 500 E. 59th Street, Davenport, Iowa Tank Registration No. 7910056 LUST No. 8LTS84

Dear Mr. Shrunk

Metcalf & Eddy, Inc. (M&E), on behalf of the Marley Pump Company, has revised the Site Completion Report (SCR) in accordance with the lowa Department of Natural Resources' ((DNR s) procedural administrative and technical comments dated June 1, 1993. Included in this submittal is one copy of the revised and completed SCR submitted via express mail. An add tional copy of this report will be submitted to GAB Business Services, Inc. (GAB) via U.S. Express Mail

Smelly, three soil borings and one monitoring well were completed at the above referenced facility. The data from this investigation allowed for this site to be classified as a low risk. Further details are provided throughout the SCR.

If you have any questions, please call Denise Story, M&E, at (708)775-0300 or Dan Van Zuiden, Marley Pump Company, at (319)388-1410.

Sincerely,

METCALF & EDDY, INC مُنَّا إِنَّهِ اللَّهِ وَالْعَدِيُّ مُنَّا

Denise Story Project Manager

Mr. Tim Verhager: United Dominion (w o report)

Mr. Dan Van Zuider, Morley Pump Company (w/o report)

Mr. Chip Nelson, Martey Pamp Company (w/o report)

GAB Business Services the 1w reports

IOWA DEPARTMENT OF NATURAL RESOURCES

LEAKING UNDERGROUND STORAGE TANK
SITE CLEANUP REPORT (SCR)

Iows Department of Natural Resources Underground Storage Tank Section Walkes State Office Building 900 East Grand Avenue Des Moines, IA 50319-0034

515/281-8693

March 1992

IOWA DEPARTMENT OF NATURAL RESOURCES

HON -- YAU

<u> </u>	District New	D VIT ROLVA	CHORS BEFORE	COMPLETING ***	
	Leaking Undergro	and Storage I	ank Site Cleaning	Report (SCR)	
		STE DENT	IFICATION		
LUST No:	8LTS	UST 24	egistzacion Mumber:	7918056	
Size Name:	THE MARLEY PUM	PCOMPANY			
Site Address:	500 EAST 59TH :	STREET			
City:	DAVENPORT				
	respon	Sible Part	Y IDENTIFICA	TION	
Nume:	THE HARLEY FUN	P COMPANY			
Street:	500 EAST 59TH	STREET			
Cla	DAVERPORT		State: 1A	72e Code: 52808	
Rebeited Dear	11/4/93				
SITE RISK CI	ASSIFICATION (: [] H	igh risk þá	LOW RISK [NO RISK
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7		.	Approved 1	ete:	

APPENDICES CHECK-OFF SHEET

Ext the box to indicate the appendix is attached. Attach the appendices to the end of the SCR in the order listed.

Appendix 1 "B(C) - Tank & Line Tightness Testing Results" Lopies of all results, supporting field data, and the third party evaluation of the legk detection system. Explain the cause of testing anomalies and discuss any corrective action or repairs made to the system. Label as B(C) - Tank & Line Tightness Testing Results.
Appendix 2 "B(D) - Topographical Site Map" "opographic map of the site and surrounding area. Label as II(D) - Topographical Site Map.
Appendix 3 "B(E) - Scaled Site Plan" Wap showing the site and immediate surrounding area. Label as IIIE) - Scaled Site Plan.
Appendix 4 "B(F) - Scaled Site Vicinity Map" Vap showing the site in relation to general area features and the locations of properties adjacent to the site affected by the petroleum contamination or with potential to be affected as a result of contamination movement. Label as MF) - Scaled Site Vicinity Map.
Appendix 5 "B(8) - DNR Form 542-1332, Sail Boring Logs" Completes DNR form 542-1392 for each sail boring at the line. Label as III(8) - Sail Baring Log.
Appendix 6 "BI(H) - Soil Contamination Plume Map" Soil contamination plume map depicting the full extent of vadose zone soils exceeding the soil contamination corrective action levels. Label as III(H) - Soil Contamination Plume Map.
Appendix 7 "IV(8) - DNR Form 542-1392, Monitoring Well Construction Diagram" Completed DNR form 542-1392 for each monitoring well at the site. Label as IV(8) - Monitoring Well Construction Diagram.
Appendix 8 "IV(G) - Groundwater Contour Map" Groundwater contour map based on work cone at the site. Label as IV(G) - Groundwater Contour Map.
Appendix 9 *IV(I) - Groundwater Contemination Plume Maps* Groundwater contemination plume maps depicting the full extent of free phase product and dissolved phase contemination exceeding the groundwater corrective action levels undo 135.7(9) and the levels of groundwater contamination within the plume. Label as IV(I) Groundwater Contamination Plume Map.
Appendix 10 "VI - Hydrogeological Cress-Section Diagram" Stratigraphically correlated hydrogeologic cross-section or three-dimensional diagram which adequately defines the spatial relationships of subsurface materials at the site. Label 4s VI Hydrogeological Cross-Section Diagram.

Appendix 11 "Vill - Receptor Survey Map" Site area map with the results of the following receptor sur	veys illustrated:
Surface Water Body Sunney, Location of surface water bodicts within 1,000 feet of the cotroleum contamination and evaluation between the contamination and surface logical connection between the contamination and surface.	setion of the potential for there to be a
Conduit Survey. Location of utility and natural conduits and opercoleum contamination and the results of investigations to detilect as a pathway for vapors and product.	
3) Groundwater Well Survey, Locaton of active, abandoned a 1,000 fest of the petroleum release.	and plugged groundwater wells within
 Groundwater Barriers Survey, Locations of barriers and accontamination movement. 	n explanation of their significance to
Label as VIII - Receptor Survey . Title survey narratives wit	th the headings above.
Appendix 12 "X - Laboratory Data Sheets" Copies of laboratory data sheets. Label as X - Laboratory Data	Data Sheets.
Appendix 13 "XII(8) - Off-Site Contamination Source St Data to support allegations of off-site contamination sou XII(8) - Off-site Contamination Searce Support Data.	
Appendix 14 "XIII - Site Risk Classification Justification Justification of risk classification. Label as XIII - Site Risk C	
Appendix 15 "XIV(A3) - Trestment Technology Evaluation of treatment technologies. Label as XIV(A3) - 7.	
Appendix 16 "XIV(A4) - Best Available Technology (BA identification of the best available treatment technology. Technology (BA7).	
Appendix 17 "XIV(82) - Best Management Practice" (Detailed best management practices plan. Label as XV(82)	
Appendix 18 "XIV(B3) - Monitoring Plan" (Low Risk Site Monitoring plan that will ensure any significant increase movement is detected. Label as IV(B3) - Monitoring Plan	in contamination concentration or

BON - TAC

. Date the petroi	eum release was discovered:	(mm/44/yy)	03/18/92	
. Date the petrol	eum release was reported to I	ONR: (mm/dd/yy)	04/03/92	
Site Owner Ch rovide a chronologi cert backwards. Inc didments of all previous and tank operators. chouses and tank close	cel summery of pact and present a deale all periods of time petroleum out owners and teak operators. List in the "SITE ACTIVITY" row. I	Thir Pa its and tank owners products have been t wristen contracts o list number, capacit	re May Be Photocopia and operational history stored, used or sold us r agrammats between l y, and contents of par	of far Additional Site May, Begin with the present site. List the survent use and owners, real estate on a and precent tanks, per
ATE	Present	}		
LAND	The Marley Pump Co.			
WNER NAME	500 E. 59th Street]		
UND ADDRESS	Davenport, Iowa 52808		·	
LEAL ESTATE TWNER NAME AND ADDRESS	Same as above			
MPERATOR NAME NMO ADDRESS	Same as above			
SONTRACT AGREEMENTS	See attached title documen warranty deed	ts.		
SITE ACTIVITIES	See attachment			

Is this page reproduced with additional history?

Yes []

No K

11. CABO

ATTACHMENT

I. Site History, Contract Agreements, The Marley Pump Company

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FROMIT New Office and Plant Facility 14 16-Final 177455 500 E. 59th St., Davenport, Iowa Red Jacket Mfg. Co. CHIRAC Henry R. Schaufer Co. Tac General March 1, 1971 RECEIVED 1: November 5, 1969 May 11, 1971 # 1 12 **1971** RED JACKET MFG. CO. 2W 3 California i inspiração de productiva de in Applica an For Poynt in the Commoder is intredict a liment in the aire. Productive States The society moves on the opposite toping Contract is as to saw ORIGINAL CONTRACT SUM CHANGE PETERS COTAL - . J ROMS . 1.33 501 127 M. TEL CARL. TOTAL CONTRACT TO DATE ALANCETO EN EHILLI None TOTAL COMPLETED TO DATE MATERIALT SIDRED . . Hone £# 0 % CEFOTAL COMPLETED AND STOTED ودراجوا والمعتدين فليسا فياوس . = 58 ... TOTAL DISC. consue lies. wash Arat S TOTAL EAR OF LISS PETAINIA GE 5- Art 9. 13 - V. 51 LESS PRE -- CUS FATMENTS. THE CONTINUES. 4 .-- 4 IN G. AD 4 Differ to the nemediation on a 15 stephese, down to ond they one one of their a week to der on a of the Owner or Controller or der their Control TI ALM COC GROUP HAVE CAT ON FOR PARKED OF BROTHER SUBSCINCTIONS FOR SHALL DISCOUNTRY EMBERCE OF BOTHER REners of relation come prounders this designed the Connector short provide the following constraints by signify boson Store or Iova 0.-Subscribte and Swarn to before my this Scott and a property of the int the Mark covolini aviche Certificate fa-Fayme is time given court die accordance vielen Contrate Corumanti. Bleventh :: Hay · 71 that he lams shown in the sac App colons for Phymers and or which payments have been also is have now been to alload and that the current Nutary Put o Collan G. Wester

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Henry R. Scheefer Co.

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My Commission expires: July 4, 1972

1. Site History, Page 5 of 20

Site Activities: One 500-gallon manufactured steel underground storage tank (UST) was installed on March 19, 1974 by the Marley Pump Company. This UST was used to store gasoline for the use and sole purpose of testing gasoline pumps. Filt lines, product lines, and dispensers did not exist as part of the UST system. The UST was active from its installation, March 19, 1974, to June 1983. Durling the tank's active fife, the plumbing (not specified) leaked and was repaired on March 13, 1979. Durling the time period August 1987 through November 1987, an unknown amount of fluid (gasoline and/or water) was removed from the UST and filled with sand (e.g. the UST was abandoned in place). A metal grate, which existed over the UST, was removed in June 1988. Sand and four inches of concrete were set in place of the former grate.

D. Describe the circumstances of the discovery of the release;

The Markey Promy Company planned to expand their pump resting facilities. The new facility would include three USTs. Prior to installing and commencing the testing facility, an environmental nearment measured to be conducted. This Methry Princy Company contracted facines Environmental Services, Inc. to conduct a missing facility, an exercingation. On Matrix 18, 1992, Serian évilled une hereboin, 283-1, tend to conferent contracted in present of IEEE constancial in water only See distributed deports.

Soil. Benzene 1405 og g	Water, Benzene - 0 61 mg/l			
Soil Ethythreacene 1425 ug/g	Water, Ethylhonzene - 0 25 mgrt			
Soil, Tologie - Colong g	Water, Tokums - 6 29 mg/l			
field, Notice of the stag y	Water, Xylenas - 0 25 ang/f			
Till Exiz Hydroxachosa < 10 ag-g	Water, Til. Hydrocarbons - 3.7 mg/l			

E. Describe the initial actoms talred to abate the petroleum release:

The Marley Pump company company designation & Eddy, line to conduct a limited subsurface investigation to investigate the lateral and vertical extent of commitmum on, if any

Il. Current Site Conditions

(CONFINE YOUR ANSWER TO THE SPACE PROVIDED

A. Provide a general description of the site geology:

The subsurface and is light brown to brown with grey-crange mosting. The soil consists mainly of the USCS classification ML (wery soft silly clay-tilders all to the tentums of cach terring. The borings-monitoring wells terminated into a hard, dry clay with some fine pubbles (glassial tall).

The area of unterest can be regionally characterized by thick sequences of losss (windblown silks and clays), sand, and gravel. Also present as glacia; (ii) left betime by glacia; (iii) left betime by glacia; (iii)

B. Description of the existing UST system:

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Product Stored	Gaantase	Unleaded	Unleaded	Unlex.ded/			Γ
Communication Material	Steel	Stock	Sheri	T Sieci T			
Operational Status		CHEC	K ONE BO	CRUT FOR	ACH TAN		
Contrast product Contacts HO product & 5 out-of-use	I A	M	M		() ()	[] []	
C. Totale & line tightness tests required by IDNR ? (yes or se)	No	Yer	Yes	You			
Tuk Loù Rat (ph)	l ^{NA}			11			
Line Look Rate (g/h)	HA	1	1	1 1			

>> Attack Appendix UAC) - Tank & Line Tightmess Testing Secular to hist party evaluation of the lest if tanks or lines were sightment needs, cancel names of the secular, supporting field data and the third party evaluation of the lest detection system. Explain the summ of tanking anomalies and discusse any conventive actions or require made to the system.

>> D. Attach Appendix "RI(D) - Toyographical Site Mags" Provide a topographist case of the eits and assumable one developed from work does at the o

Provide & Exponence step to uniform the minimum great provides that the extra step to the first content for the CSCS tappe. Legisle execute electrics differentials no present than 10 flest street by provided. Two first content intervals are sendered.

ATTACHMENT - SENECA ENVIRONMENTAL SERVICES INC. REPORT

SENECa

ENVIRONMENTAL SERVICES, INC.



Des Moines . Devenport . Omeha



Similitia Environmental Services, Incorporated 5113 Tilemont Avenue - Davenport, towa 52807 + (319) 386-2522

Atril 3, 1992

2

Mr. Ed Dunning Marley Pump Company 500 East 59th Street Davenport, Iowa 12807

SUBJECT: SITE INVESTIGATION FOR PLACEMENT OF

UNDERGRIUND STORAGE TANKS FOR

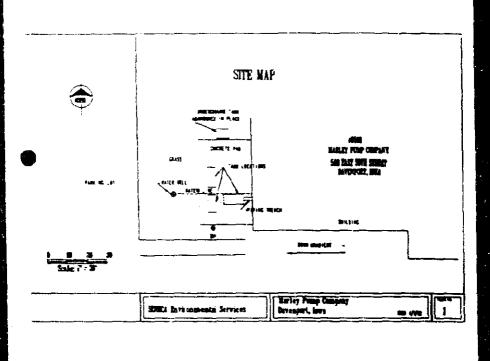
HARLEY FUND COMPANY

500 EAST 59TH STREET, DAVENPORT, IOWA

Dear Mr. Dunning:

We are submitting this letter summarizing our observations of the site investigation and soil testing at the above-referenced location.

On March 18, 1992, Semeca Environmental Services performed a site investigation at Marley Punp Company in the vicinity of the proposed underground storage tank location. The investigation involved the advancement of one borehole to a depth of 25-feet and obtaining a water sample from the borehole. A representative of Semeca Environmental Services was on-site to observe the activities, classify the soils, and to obtain the soil and water samples. The location of the borehole is indicated on the attached site plan map.



Mr. Ed Dunning Marley Pump Company March 26, 1992

A soil sample was obtained from the seven-foot depth of the borehole for laboratory analysis. A water sample was obtained from the 20-foot depth of the borehole for analysis. The samples were packaged, labeled and placed in iced storage for delivery to HET Midwest Laboratories, Inc., located in Cedar Falls, Iowa, for analysis of barrene, toluene, while benzene, and total xylenes (BTEX), for total petroleus hydrocarbons (TPH) as gascline, and for total extractable hydrocarbons (TEH) as found in diesel fuel. A chain-of-custody form accompanied the samples from the sampling site to the laboratory. The results of the laboratory analyses are listed in the appendix of this letter.

Based upon the preliminary field work and the laboratory results for the soil and water samples, it appears that the soil in the vicinity of the proposed tank excavation is not contaminated with hydrocarbons from gasoline or diesel. The analytical laboratory results for the soil sample are below the current Iowa Department of Matural Resources (IDNR) action guidelines of 100 mg/kg (ppm) for TPH and TEM. The laboratory analytical results for the water sample were found to be 610 µg/L (ppb), which is above the IDNR action guideline of 5.0 µg/L (ppb).

Mr. Ed Dunning Marley Pump Company March 26, 1991

According to the soil boring log, the soils in the vicinity appear to be tight, firm silty clays with low permeability. The hydraulic conductivity of such soils ranges between 10⁻³ cm/sec and 10⁻³ cm/sec (Freeze, et al), with an average grain size of 0.004 mm (Pettijohn, et al). Although the groundwater in the vicinity of the tank pit appears to be impacted at the 20-foot depth, the soils at the seven-foot depth do not appear to have been affected by any hydrocarbon impact. The seven-foot depth is slightly below the level of the bottes of the tank pit.

A large metal pipe runs through the tank pit excevation from a water well located approximately 20-feet west of the site in the down-gradient direction. The pipe is approximately two-feet below the surface of the ground and is set directly in the clay soils, with no sand backfill around it. The pipe is situated at a level above the midline of the proposed tanks and the tanks are of double-walled construction. It is not likely that this pipe will act as a conduit for any hydrocarbon migration if a leak occurs in one of the underground storage tanks. The monitoring system which will be installed will indicate any fuel loss from the tanks or lines and the leak would be mitigated before product could migrate along the pipe line.

Mr. Ed Dunning Marley Pump Company March 26 1992

Due to the fact that Serwice Environmental Services has identified the presents of certain hazardous substances or contaminants, you should be aware that you have, or may have, the duty to report said findings to federal, state, or local authorities in a timely manner. Unless otherwise informed, Seneca Environmental Services assumes that said reporting has been properly completed by ym.

You should send a copy of this letter to the IDNR for their project file regarding underground storage tank activities at your facility. Please send it to:

Vr. Verne Schrunk
Towa Department of Natural Resources
Undergrund Storage Tank Division
Wallace Scame Office Building, 5th Floor
500 East Grand Avenue
Des Holmes, Iowa 50319.

One copy of this letter should be sent to GAB for reinbursment purposes. Please send it to:

Mr. Neil Searcy
GAB
P.O. Box 3817
Dam Hoines, Iowa 50322.

Hr. Ed Dunning Harley Pump Company March 26, 1992

sensea Environmental Services appreciates the opportunity of addressing your underground storage tank needs. If you have any questions concerning this letter or if we can be of further assistance, please give us a call.

Sincerely, Seneca Environmental Services

Forther Mitter waves

Heather Morton-Davis Registered Groundwater Professional, #1252

REFERENCES

Freeze, Allan R. and Cherry, John A., 1979, <u>Groundwater</u>, Prentica-Hall, Englewood Cliffs, New Jersey, 608 pp.

Pettijohn, F.J., 1975, <u>Sedimentary Rocks</u>, Harper & Row, New York, 628 pp.

APPENDIX A

SOIL BORING RECORD

SENECA Environmental Services Inc.

Job Geo	etion <u>Davenport, Iqu</u>				Total Depth of Hole 25.0 feet Depth to Water 20.0		
r	7. Crew Historical Control	T	****	T	Date Completed 3/18/92		
INEPTH UK FLEET	WELL CONSTRUCTION DETAIL	200	3	LITHOLOGY	DESCRIPTION		
-0		-	-	OL	Brass - Yepzeil		
-2				a.	Silty Clay, brawn, no odor		
-4			į		Silty Clay, silght ador, dark gray		
-6			Ì	多一	Clayer Silt, light gray, no oder		
-8					and of the state o		
-10					-		
-12			I		Clayer Silt. light brown with fine groing of send, no oder, deep		
-14	1		Ī		-		
-16	: 	Ì			erra erra dans		
-18		Ì			Silty Clay, sark gray, subadded with fine to medium grained sand, no oder, damp		
-50	Å			a	Clay, gray-green, wet, no poor		
-22				a d	-		
-24				腿			
-26					Total Supth - 25.0 Feet Boil Supin - 3-0-041, E-7-041		
-58					9-14-041 Meter Seeple - M-0412		
-30							

APPENDIX B

LABORATORY ANALYTICAL REPORTS

FOR

SOIL SAMPLES

NET Midwest, Inc. Ceder Fetts Division 704 Enterpries Orivo P.O. Box 625 Cedar Falls, IA 50613 Tel: (319) 277-2401 Fax: (319) 277-2425

ANALYTICAL REPORT

Mr. Heather Morton-Davis STREEL INVIRONMENTAL SERV. 5113 Tremont Avenue Davenport, IA 52807

Xylenes, Total

Total Hydrocarbons

03/30/1992

ug/g

ug/g

Sample No.: 163005 Job Number: 92,2095

S-7 BH-1 Marley Pump Sample Description: SOIL

Date Taken: 03/18/1992 Date Received: 03/19/1992 Result Units Date Analyzed/Analyst Parameter Total Extractable Hydrocarbons <10. p/pr 03/27/1992 hlk VOLATILES - BTEX (NONAQUEOUS) Banzane <0.5 uq/a 03/24/1992 nkk <0.5 ug/g 03/24/1992 mkk Ethylbenzene <0.5 ug/g 03/24/1992 mkk Toluere 03/24/1992 mkk <0.5

<10.

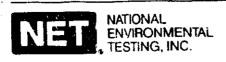
Sample introduction performed in reference to EPA Hethod 5030 (purge 4 trap). Analysis performed in reference to EPA Hethod 8015 for volatile organics using flame ionization detection. (Iowa Method OA-1, Revision 7/01/91).

Method Detection Limits: Benzene <0.5 ug/g; Toluene <0.5 Ug/g; xylenes, Total <0.5 ug/q; Total Hydrocarbons <10. ug/q; Ethyl Benzens <0.5 ug/g.

Extractable Hydrocarbons are extracted in accordance with EPA (sonication extraction). Analysis is performed Method 3550 in reference to EPA Method 8100 using flame ionization detection. (Iowa Method GA-2, Revision 7/01/91).Method Detection Limit <10. ug/g

receive

03/24/1992 mkk



NET Midwest, Inc. Cedar Falls Division 704 Enterprise Drive P O. Box 625 Cedar Falls, IA 90813 Tel (319) 277-2401 Fax: 1319) 277-2425

ANALYTICAL REPORT

Ms. Heather Morton-Davis SENECA ENVIRONMENTAL SERV. 5113 Tremont Avenue Davenport, TA 52807 03/30/1992

Sample No.: 163006 Job Number: 92.2095

Sample Description:

W-BH1 WATER Marley Pump

Date Taken:

03/18/1992

Date Received: 03/19/1992

Units Date Analyzed/Analyst Result VOLATILES - BTEX (WATER) 03/20/1992 ake 0.51 mg/L Benzene 63/20/1992 ake Ethylbenzene 0.25 mq/L 03/20/1992 ake 0.29 pq/L Toluene 03/20/1992 ake mg/L Xylenes, Total 0.25 03/20/1992 ake mq/L 3.7 Total Hydrocarbons

Sample introduction performed in reference to EPA Method 5030 (purge and trap). Analysis performed in reference to EPA Method 8015 for volatile organics using flame ionisation detection. (Iowa Method 0A-1, Revision 7/01/91).

Method Detection Limits: Benzene <0.002 mg/L; Toluene <0.002 mg/L; Kylenes, Total <0.002 mg/L; Ethyl Benzene <0.002 mg/L Total Hydrocarbons <3.10 mg/L.

> R. L. Bindert Project Manager





NET Midwest, Inc. Cadar Falls Division 704 Enterprise Orive P O. Box 525 Cedar Falls, IA 50813 Tel: (319) 277-2401 Fax: (319) 277-2425

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II. Current Site Conditions, Page 6 of 29

B. Description of the existing UST system - 500 gallons UST. Operational Status: Contains no product and is out of use. The UST tank fill lines, product lines and/or dispensers are not part of the UST system) was abandoned in place (e.g., li/mid was removed and sand was place inside the fank) during the time period August 1937 through November 1937.

Three new USTs were installed in March 1992 for Marley Pump Company's Engineering Lab. The tanks are constructed of double walled steel (Stip3) and have a factory coal tar epoxy coating. Each tank has a capacity of 560 gallons. Tank 1, Registration Number 16157, stores 532 gallons of unleaded gasoline, Tank 2,, Registration Number 16158, stores 532 gallons of unleaded gasoline, and Tank 3, Registration Number 16159, stores 76 gallons of unleaded gasoline and 432 gallons of methanol. The tanks were filled on October 5, 1992. All the USTs are operational but no fuel is dispensed; the fuel is recirculated back to the tank. Addition information of interest:

- Vapor probes are in each vapor monitoring wells (monitored by Red Jacket (Markey) - RLM 9000.
- Liquid refraction sensors in the interstitial space between tank walls -RLM 9000.
- Automatic tank gauging. Hard copy printed and retained for Marley's records.
- Internal and external cathodic protection. Cathodic protection test was conducted in february 1993 and is scheduled to be tested again in February 1996.
- Tank piping is above ground and surrounded by a sealed concreted pad and four-inch concrete curb.

APPENDIX II (C) - TANK & LINE TIGHTNESS TESTING RESULTS

Tank and line tightness testing was not completed on this 500-gallon abandoned in place tank. The tank was closed in place prior to any effective IDNK regulations.

Tank tightness testing was completed for the three newly installed tanks. The tanks passed Seneca Corporation's tank tightness testing with no anomalies. This information is included as part of this appendix.

SENECA CORPORATION

P.O. Box 1208 17851 244th Ave. BETTENDORF, 10WA 52722

(319) 332-8000

Marley Pump Company

500 Last 59th Street

Devemport, IA SIBUR

April 29, 1992

I'll BOOM AS POSSIBLE

ATTENTION Ed Dintilling

Similar: Red Jacket Installation

MESSAGE ...

Enclosed, please flud over corrected from one of like Colifor's inspection

of our installation at the above references for a con-

Please retain for your fatou.

Haute your

Mary Hamas SIGNED.

APR 310 1992

OF DUACKET PUMPS DAVENPORE IOWA

OCT 6 93 18:08

PAGE. 000

M.W. Collier Inc. 949 Nixton Street Indianola, lowa 50125 515-961-7732

derected Five 1

IOWA UST INSPECTION REPORT

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1	ANKISI OWNER LANKISI WNER LANKIS OWNER	USE REGISTRATION DATA , DING DIN ARIA TAISMANDENIA , LASTA L L LASTA L L LASTA L L LASTA L L LASTA L L L L L L L L L L L L L L L L L L L
		CVERS
	UST LOCATION NAME RED TACKED FACULTY ADDRESS 500 E. 590 St. DAUEN ADDR. TH.	TVPS OWNERSHIP Government: Private/Corporation: X
	Phone	PROJECT DESCRIPTION THAT
	CONTRACTOR	OURSEIL OVEREIL MAN
	Name Sevecia 1086 Aug Ave	ANK MONIMOR
	Pettembel IN 52722	
	Prone: 319-332-8000	

NOTES:

CONNER KEY YAKKE

Job Number: (12-400-1175

1. PRE-CONSTRUCTION REVIEW

- Sac Pun Reviewed
- # Insulto Exercal
- Permis Required
 - Required By Crty of DANSAD LET
- Start Durc.
- lows DNR Fens. # 148 Recieved
- # Has Approved

åYes Kelia N∧elles Applicable	Pais
465	3/11
462	
4 <i>e</i> 5	
	3/25
ALCO	
125	3/11/92

II. Tank Insulfation

Tank Data	2 1	. 82	#3	#4	# 5
Type	الأنه والأرأ		-1 $\log \partial a \rangle$		
Capaciss	(5)		્ જેનો		
Diameter		MIL	1 7/9 1		
Length			1	Į	
CL .	3/673	386 Z3\$	38 64 3 G		1
Tested	405 6 PM.	VC2 5/4	VC 5/5		<u> </u>
Type Product	(SPSOLUE	Desel	Constine	•	

- # Tanks inspected As Delivery
- Tanks Danaged During Shipping
- # Proper Excavation Size And Depth
- Lype Backfill: 4940 Acceptable?
- Lanks Ballasted

Type Courses + 4d

- Il Distance Resween Tanks: 36" Acceptable?
- # Bursai Depth 5 10 Acceptable!
- a Mechanical Compactors Used
- # Libra Labia Used
- Construction/Vagor Wells Installed
- Its Lank Momeon trestable.t
- # Overpill hetaled
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Inspected By: Milite Collier Approved MI

Pinal Approval/Date 4 15/7 Z

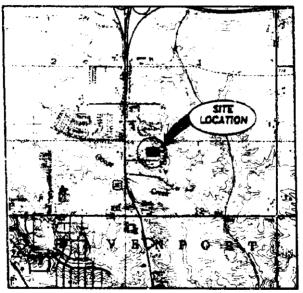
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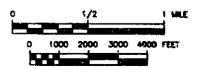
COOK COUNTY T 78 N, R2W SEC. 12





SOURCE: U.S.G.S. DAVENPORT EAST, IOWA - ILL. (1975) CONTOUR INTERVAL - 10 FEET

SCALE: 1:24000



TOPOGRAPHICAL SITE MAP

The Marley Pump Company 500 E. 59th Street

>>	E. Attach Appendix "II(E)	Scaled Site Plan"

Provide a scaled time (scale 1 sech = 20 to 50 feet) of the site and the immediate surrounding area. It must show the following, but is not immediate surrounding area. It must show the following, but is not immediate surrounding and dispensions. 2) Portness site factors (s.e. buildings, rouds, walks, waterways, makholes, etc.).

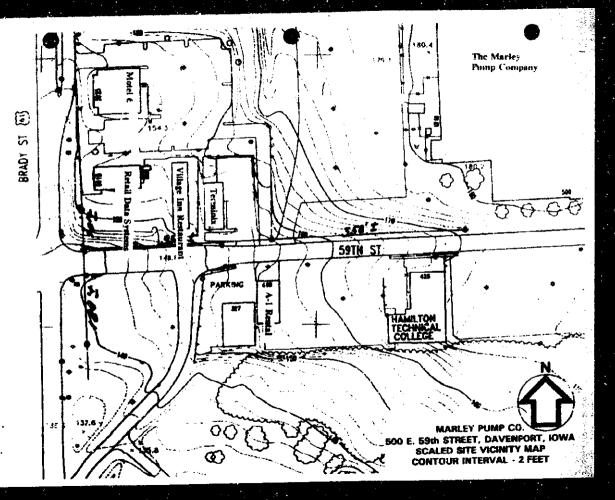
> F. Attach Appendix "II(F) - Scaled Site Vicinity Map"
Provide a scaled (some 1 such -- 200 to 500 feet) vicinity map showing the sits in relation to serrounding general features. It most show the followers, but is not breated to:

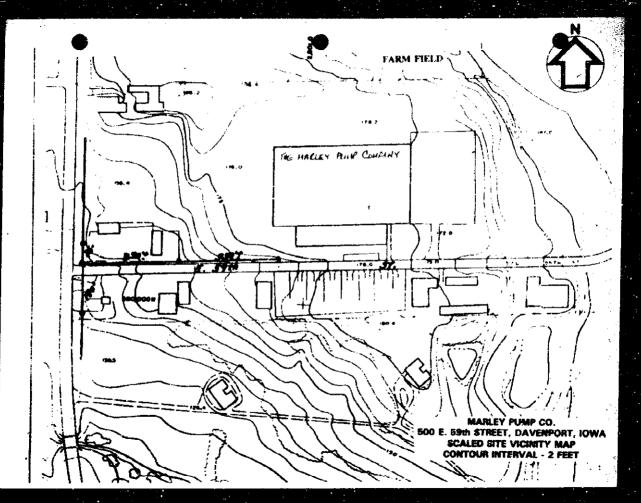
- 1) Partiment general features (i.e. buildings, roads, waterways, mekholes, etc.)
- 2) Location of properties adjacent to the set affected or potentially effected by the contamination

Liet below the norm of owners of property effected or potentially affected by the contemination. Easers the name engrapered to the data provides on appoints: "In(F) Scaled Site Vicenty Map."

Property Owner Sums	Property Address	Owner Mailing Address
Hamilton Technical Institute	1011 E 53rd Street Davenport, IA	People contacted at this facility did not submit this information after several attempts to contact them.
Orkan Peat Cordroi	50) W. 78th Strect Davosport, IA	People at Orkin did not subject this information after several attempts to contact them.
A-2 Rental	39th and Brady Devemport 1A	The people contacted at this facility del not know the course's mailing address.
Desigy a Restaurant, General Grove	4200 Bindy Street Devenport, IA	The general manager slid not know the sending address of the property owner.
7		
•		
10		
11		

^{*} When poling the property owner on whether they obtain their water braues preven well or the Cay of Developer, all property owners indicated that they obtain their water form the City of Davesport





Paddinton Boarding Kennel

Refractory Insulation Supply Inc.

нан

Neilson Plumbing Campbell Electric Iowa Bearing

Crystal Refrigeration

Eagle Construction

Cruciable Service Center

Engineered Seat Products

Aero Plumbing

94 Street

Goodwin & Brohm

Roers Printers

EXTENDED SITE VICINITY MAP NO CONTOUR INTERVAL

Contour interval not provided. These man are greater than 1,000 feet away from identoy.

III. Soll Sampling Methods & Findings

A. Boring number and piacement.

A. STUTING DISTRICT WAS PROCEEDING.
Explain and justify the retreash used to describing the number and placement of sail horings. Factors that should be tolten into passideration when developing the rangeals include any strategraphy, media conductivity, mobility of contaminants and duration if the relinant. The number and placement of forings must be sufficient to allow that:

1) determination of the lateral and vertical extends of noil occamination, 2) accurate description of site straigraphy, and 1) identification of the training man between those arms that do and do not exceed the soil contamination cleans level. The identification of the transact zone will repair the construction of constant developed through the interp Additional information will be required to substitutions the location of content lines of it is determined that it per lines of it in descriptions that the lines are not consistant with the reposals or data provided or the interpolation techniques appear to be quanticable.

Metroif & Eddy's (M&E) investigation was based upon Senses Environmental's initial environmental investigation and the IAC 135 rules and guidefines. Placement of haring/monitoring wells were dependent upon restrictions of equipment size, underground utilities, buildings, anticipated groundwater flow direction, and preliminary environmental investigations performed by Senzea and Materalf &

MW-1: M&E chose the lucation of this well due to its close proximity to the abandoned in place UST. The purpose of this well was to verify the presence absoure of petroleum hydrocurbon in the subsurface; to gather water level data to gain a better understanding of the groundwater flow direction; to determine the vertical and lateral extent of potential contamination (this data, use in conjunction with the other well date, will help determine the lateral extent of contamination); to describe the site strategraphy; and perform a sing test to determine hydraulic conductivity of groundwater.

MW-2: Mile), breated this well near the anticipated location of where Senera driller, SH-1. The purpose of this well was to verify the presence absence of privateurs hydrocarbon in the subsurface; to gather water level data to gain a better understanding of the groundwater flow direction; to determine the vertical and integral entert of potential contamination (this data, use in conjunction with the other well data, will bein determine the interni extent of contaminatinal; to describe the site stratigraphy; to obtain a Shaiby take sample of soil to that a lehteratory permembility test could be conducted (to determine inherentory hydraulic conductivity); and perform a slag test to determine begravite conductivity of groundwater.

MW-3: M&E chose the tecation of this well to obtain water level gauging data away from the influence of building structures; to provide hathground toil and groundwater quality data away from the influence (upgradiant) of the abandoned in place UST; verify the presence/absence of privoleum hydrocarbon in the subsurface; to gather water level than to gain a better understanding of the groundwater flow direction; to determine the vertical and lateral extent of potential contamination (this data, use in confunction, with the other well data, will help determine the lateral extent of contamination); to describe the rite stratigraphy away from the influence of potential fill areas (UST area); and perform a slug tes; to determine hydraulic conductivity of groundwater.

MW-4: This assessment well incuring was besed on the incurred of utilities. The purpose of this well is collect proundwater elevation date to better determine the groundwater flow direction. to "brandon" the "flattened" triangle, and to determine how far petrologic hydrorarbons (if any) have mirrared downgradient of MW-2.

>> B. Attach Appendix "III(B) - Soil Boring Logs" Creamiota and attach a DNR form 542-1392 for each soil boring at sate.

C. Explain the actions taken to prevent cross-contamination between boreholes during installation and SELECTION IN CH.

All deviabele regionment autors, soft appears, were decontrasioned between each buring and after each use by steam cleaning with a high pressure potable steam water wash. Soil or debris not removable by the high pressure steam were removal by terubbing with a seruh brach and Alconor and then steam cleaned. The steam cleaner stillned approximately 3,000 per with temperatures of 200 F.

Equipment such as stainless steel Paire; were washed with an Alconox/Distilled water wash and a distilled water risse.

Each manifester well was steam cleaned with a high pressure team notable water week. After cleaning, the wells ware installed by personnel wearing new lates given.

SOIL BORING LOG & MONITORING WELL CONSTRUCTION DIAGRAM

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The second secon

Boring/Well MW-:	Name MAR		COMPA		a DAVENPOR	RT, IOWA
Boring Dept 25		f (inches) 6 25"		Crilling	Method HOLL	OW STEM AUGER
Weit Contro Registrol or	ctor :NDECO INC - # - 0. 0007201			Logged	METCA	LF & EDDY
Date & Time Etart	9716792 - Date 0910 - Lime	& 9,/16, End 1020		ound Surfa vation (AS		Lust Number 8LTS84
Ompth in Feat	Well Construction Details	Blow	; Sc No	трі в Ту 94_•	PID/FID Reading	Rock Formations, Soil, Color and Classifications, Observations (maisture, etc.
0-25		~A	1	3" O.D. 5' LONG SS	0 ppm	Moist brown, silty fine sand, trace organics (SM)
25-53		NA	! 2	<u>.</u>	178 ppm + Questionable PID Reading	Moist brown with gray mottling sit with trace organics (SM)
505		NA.		3" 0 D 5' LONG 3S	PID Not Working Property	Brown with gray mottling, moiet, sit with trace clay (ML)
7.5+10.0	• • :	NA NA	4	-	PID Not Working Property	Brown with gray mottling, most, sit with trace clay (ML)
10 0-12.5	f ▼ nr pa	NA.		3° 0.0. 5' LONG SS	0 ppm	Brown with gray mottling, moist, soft aff with some clay (ML)
12 5-15 0	T ▼ 12.89	NA	\$	 	0 ppm	Brown and gray, maist, soft, clayey sift (ML)
15 0-17 5	· · · · · · · · · · · · · · · · · · ·	NA.	-	3" O.D. 5' LONG 55	O ppm	Brown and gray, moist, wery saft clayey sit (ML)
17 5-20 0	.i !	NA	8	(0 ppm	Gray, moiet, very soft, cidyey silt (ML)

+ SS (split spoon) H\$ (hollow view ouger)

DBSERVATIONS
Date | 9/17/92 | 10/1/92 |

KATER LEVELS
Level | 1/289 | 11/03 |

Stotic Work Level Symbol v Time | 0745 | 0745 |

OIL BOF	RING LO	G &	MONITO	RINC	WELL		RUCTION DIAGRAM
Boring/Well	Nome	MARL	EY PUMP (ONPAN		DAVENPO	9th ST. RT, IOWA
Borma Dept	n /Feat) x [lismeter	(Inches) 6_25"		Drilling	Method HOL	LOW STEM AUGER
	ctor :NDECC # +D, 00	-			Logged	by METC	ALF & EDDY
Date &r Time ≧tort	9716792 0910	Date Time	år 9/16/ End 1020	92) Gro	ound Surfac	te L) 715,68'	just Number 8LTS84
Depth in Feet	Well Constru Detons		Blow Count		imple	PID/FID Reading	Rock Formations, Soil, Color and Classifications, Observations (moisture, etc.
20 C+22.5 ·			NA.	<u>No</u> 9	3" O.D. 5' LONG SS	0 ppm	Gray moist soft dayby sit (ML)
22 5-25.0			NA .	10	- 	0 psm	Gray moist sifty day (CL). At 24.5–25.0ft, dry, hard, glacial till with many fine pubbles (CL)
	EOB - 2	511)			
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OBSERVATO	INS	- 70	Date Level		_	-j	

Static Water Laura Symbol .

SOIL BORING LOG & MONITORING WELL CONSTRUCTION DIAGRAM

Soring/Well Mew-7	Name	MARLEY PUMP			DAVENPO	RT, IOWA
Forming Dept		1	,	Urilling	Metrica HOL	LOW STEM AUGER
Meil Contra Registration	stor hi⊃E23			Logged	METC/	ALF & EDDY
Date & Time Start	9716792 1110	Date & 9/16 Time End 1226	5/92 Gro D Ele	ound Surfaction (ASL		Lust Number 8LTS84
Depth in Feet .	Mari Construc Deloka	tion Blow Count	ša No.	nipie	PID /FID Reading	Rock Formations, Soil. Coior and Classifications, Observations (moisturs, etc.)
0-25		: NA	1	3" 0.D. 5' LONG SS	mqa C	Black-brown, damp, sity fine sand, with trace organics (SM) Black, damp, fine sand with medium sand, little sit (SW)
2 6-5 4		NA.	2		0 ppm	Brown damp hard clayey set (ML)
5 0-15		NA	3	3" 0 D 5' LONG SS	0 ppm	Brown-black damp clayey sit, soft, trace organics (ML)
75-100		NA			0 ppm	Light brown and gray mottled molet, soft clayLy set (ML)
10 0-12 5	1 i	. NA	5	3" O.D. 5' LONG 5'S	0 ppm	Brown and gray, moist, soft cloyey skt (ML)
10 E-15 C	▼ :3 73	NA.	6	-	O ppm	Brown and gray, maist, soft clayey sit (ML)
15 CH 7 5	- `♥ 15 67	NA.	-	3" O.D. 5" LONG 5S		Brown and gray mattled moiet, soft cicyey allt (IEL)
17 5-20 0	· _	NA.	8	 : :	0 ppm	Brown and gray mattled w moist, saft clayey silt (ML)

· SS (apr. 1000h) 45 (nonce sterr	ander!		
OBSERVATIONS WATER LEVELS Static Ruter Level Symbols	Ecte 9/17 Level 15.67 Time 0745	/92 10/1/92	

SOIL BORING LOG & MONITORING WELL CONSTRUCTION DIAGRAM Soring/Well # 1 Facility 500 E. 59th ST. Nome MARLEY FUMP COMPANY! Address DAVENPORT, IOWA WW-2 Boring Septh (Feet) x Diameter (Inches) Crilling Method HOLLOW STEM AUGER Well Contractor NDECC INC Logged by METCALF & EDDY Registration # D. 0007201 3716792 Date & 9716/92| Ground Surface Lust Time Start 1110 Time End 1220 Elevation (ASL) 715.56 Number 8LTS84 Gept* Well Construction 81am PID /FID Rock Formations, Soil. Color and Classifications, Cators Count Reading Observations (moisture, etc.) 7 VD# * 3" 0 0. Gray, moist, very soft silty day (CL) 5' LONG 20 1-20 5 0 ppm ŠS Gray damp silty clay with some medium sand (SM/SC) 22 5-25 3 0 ppm Gray dry hard, glacial (fil (1 ft) (CL) F.O.B - 25% 55 (sput spoon) HS (hallow stem auger) ORSERVATIONS. Dota WATER LEVELS Static Water Level Symbol v

SOIL BORING LOG & MONITORING WELL CONSTRUCTION DIAGRAM Baring/Wei # Facility Foculty 500 E. 59th ST. ww- 3 Nome MARLEY PUMP TOMPANY: Address CAVENPORT, OWA Soring Desith Feet a Diameter inches Critics Method HOLLOW STEW AUGER Mel. Cortiagnar MDECO NO Logged by METCALE & EDDY Registration (# a pochaci Date & Time (tarr Date & 1916 92, Pround Surface Time End 1450 - Elevation ASQ 3 16:42 Lust 715.23 Number BLTS84 i ept+ mail: Construction Blow 90.70 Samo Rock Formations, Sal. Color and Complications . . Delors]avrt 9econo (floorvotions (magazine, etc.) ... 0.0 Brown, damp, att men some clay, title fine sond (ML) LONG 5-25 NA a pom ŠŠ set. Hitte fine soud. 26-50 ٧A J ppm !race organics (ML) 3" 00 Light brown with gray 5' LONG mottling, damp, very soft clayey set (ML) 3 0 ppm MA ςς, Brown with grey mottling damp to moiet, very seft, 7.5-10.0 0 ppm 3" C.D. Light brown with gray 5' LONG mottling, very soft clayey set (ML) 10 0-12 5 1₩ 14 62 NA 0 ppm Light brown with gray moltling very soft dayey siit (ML) 125-50 NA 6 0 ppm 37 G.D. Gray moist very soft clayey sit (bit) 5' LONG 15.0~ 11.5 7 NA 141 ppm 55 Gray moist very soft clayey sift (ML) 175-200 8 NA 0 ppm

ઝ▼₹

4 SS (apid apoon) HS (hollow stern o	ouger)	
OBSERVATIONS	Date	(9/17/92 10/1/92
WATER LEVELS	Level	11.52 9.7
: Static Water Level Symbol v	Time	0745 0745

The state of the s SOIL BORING LOG & MONITORING WELL CONSTRUCTION DIAGRAM Boring/Well # : Pacetry 1 Facility 500 E. 59th ST. Name MARLEY PUMP COMPANY Address DAVENPORT, IOWA 44-T : Ording Method HOLLOW STEM AUGER Boring Depth (Feet) k Diameter Unches) Wer Sorratto NDECC NO .ogged by METCALF & EDDY Repaired on 🦸 D. 000723 9 €. 92 Sate & 9716792; Ground Surface Lust "me 11or1 1030 Time End 1450 715.23 Number 8LTS84 Elevation (ASL) PID /710 . 80 ##I Construction Вож Samole Rock Formations, Soll. r - ee. Reuding Color and Classifications, Detoss Count Observations (maisture, etc.) 4¢ T-04 . 3" O D. Gray, moist very soft day sat, 20-21ft (ML) 5 LONG 20 0-22 5 0 ppm NA Gray dry hard clay with SS fine pebbles (CL) Gray dry hard clay with fine peobles-glocial . 22 5 - 15 0 : 10 0 ppm tki (CL) E.C.B - 25ft 55 (spirt apoon) HS (hollow stem ouger) **OBSERVATIONS** Date

Time

WATER LEVELS Static Water Level Symbol v

Boring/Welf # MW-4	Facility Name MAR	LEY PUMP (Facility	500 E. 5	RUCTION: DIAGRA 19th ST. RT, 10WA
Boring Depth (F 19:5)	eat) x Diamete x	fr (inches) 6.25"		Drilling	Method HOL	LOW STEM ALIGER
Well Contractor Registration #	TERRACON () D. 40278			Logged		ORY ALF & EDDY
Date & 15/1 Time Start 1346	9/93 Date) ime	& 10/19/3 End 1505		und Surfac vation (ASI		Lust Number 8LT\$84
Deptr Wein Feet	Construction Details	Blow Count	Sei No	npie	PID/FID Reading	Rock Formations, Soli, Color and Classifications, Observations (moisture, etc.
20-40		3/3/2/3	,	2" C.D. 2' LONG S\$	0.2 ррт	Brown w/ orange strictions med. dense, slightly plastic damp, silty clay (CL)
4.5-6.5		2/2/2/3	ž.	2" 0 D. 2' LONG SS	9.2 ppm	Top 10" — Brown, danse, moist plastic day (CL) Sattom 5" — black/gray, dry, slightly plastic day (CC)
70-96		1/1/2/1	į	2" 0 D. 2' LONG SS	0 ррго	Brown, mod. dense, damp, sightly plastic silt with some clay. At bottom 2" brown/gray mottled (ML)
9 5-11 9		1/3/4/4	4	2" O.D. 2' LONG S\$	0 ppm	Ton/gray, moist, slightly plastic mod. dense sit. Betom 6" has arange strations (ML)
12 0-14 0 +		2/2/2/3	5.	2" O D. 2" LONG 55	D ppm	Tan/gray with orange strictions, mod. dense, slightly plastic, wsi, sit (ML)
14 5-16 5 ▼ 1	6 16	2/2/2/3	6	2" O.D. 2' LONG SS	O ppm	Tan/gray with orange strictions, mod. dense, slightly plastic, well, sit (ML)
17 C=19 0		2/2/1/2	7	2" O.D. 2' LONG 5S	0 ppm	Tan/gray with orange striations, mod. dense, sightly plastic, wet, slit (ML)
19 5-21 5		2/2/3/3	i e	2" O.D. 2' LONG SS	0 ppm	Top 12" - grey with orar strictions, sitty clay, dens slightly plastic (CL) Bottom 12" - grey, very dense, moist, fine gravel (TLL)

10/20/93

OBSERVATIONS WATER LEVELS

Boring/Well	# Facility	PLEY PUMP C	! Facility	500 E. 59	
*******	(Feet) x D'ame			Method	OW STEM AUGER
Well Contrac Registration		CONSULTANTS	Logged		RY LF & EDDY
Date & Time Stort		e & 10/19/9. e End 1215	3 t Ground Surfo Elevation (AS		Lust Number 8LTS84
Depth in Feet	Well Construction Details	Blew Count	Sample No. Type •	PID/FID Reading	Rock Formations, Soil. Color and Classifications, Observations (maisture, etc.
20-40		2/2/2/2	No. Type • 2" 0.D. 1 2' LONG SS	2.3 ppm	Crange/brown mattied damp, slightly plastic sity day (CL)
40-15		2/1/2/3	2" 0 D. 2 2 LONG 35	8.2 ppm	Top 4"-Brown/oronge/bloc mottled, moist, slightly ploatic sit with some cloy. Brown with oronge striction saturated, slightly ploatic s
€0-80		2/2/2/3	2" C D. 3 2' LONG SS	2.9 ppm	with some clay (ML) Brown with orange striation saturated silt with some clay, slightly practic (ML)
			į		
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OBSERVATIONS MATER LEVELS State Water Level Symbol .

Octe

SOIL BORING LOG & MONITORING WELL CONSTRUCTION DIAGRAM

Boring/Well E-7 Boring Cept		LEY PUMP C	OMPAN			
Well Control Registration	tor TERRACON C	6.25"		_ogged	by D. ST	
Date & Time Start		& 10/19/9 End 1247		und Surfac		Lust Number 8LTS84
Depth in Fast	### Construction Defails	Brow Count	Sar No.	Type •	PID/FID Reading	Rack Formations, Soil, Color and Classifications, Observations (malature, etc.)
20-40		2/1,2/3	,	2" O.D. 2" LONG 55	2.7 ppm	Brown with orange strictions and black specs, molet to wet slightly plastic set with some clay (ML)
4 ≎-€ ≎		2/1/2/3	2	2" 0.D. 2' LONG 5S	3.3 ppm	Brown with orange striction and black specs, moist to wet slightly plastic sit with some clay (ML)
60-60		2/2/2/3	3	2* 0.D. 2' LONG 55	3.8 ppm	Brown with orange striction and black spece, maist to wet slightly plastic salt with some clay (ML)
		l				
	•				<u> </u> 	
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	:			1		
	7	:	! ! !			
			!			

Date

OBSERVATIONS

WATER LEVELS Static Woter Level Symbol v

SOIL BORING LOG & MONITORING WELL CONSTRUCTION DIAGRAM Boring/Weil # Focility Focility 500 E. 59th ST. Name MARLEY PUMP COMPANY 2-3 Address DAVENPORT, IOWA Boring Septh (Feet) . Digmeter (Inches) Drilling Method SOLID STEM AUGER 6.35" r Well Contractor TERRACON CONSULTANTS D. STORY Logged by Registration # -.B. 40278 METCALF & EDDY 10/19/93 Date & Date & 10/19/93 | Ground Surface Time End 1610 | Elevation (ASL) Lust Time Starr 1855 715 68 Number 8LTS84 Secto Well Construction e or Sample PID/FID Rock Formetions, Soil. n Fest Datoss Count Reading Color and Classifications. Observations (moisture, etc.) Type • Brown (it. and derk)/gray 2" 0.D. 1.5" LG. mottled, moist, plastic HYDRAUL 20-3.5 0.0 ppm mod. dense day (CL) PUSHED SS Brown with block specs 2" 0 0 moist to wet, plastic HYDRAUL 35-55 2" LONG 0.0 ppm ailt with some clay PUSHED 55 mod. dense (ML) Brown, wat, mod. dense. 2° 0.D. slightly plostic silt (ML) HYDRAUL 1.5 LG €5-60 0 ppm PUSHED 35

	4 55 (split spoon) HS (hollow atom	ouger}					
į	GBSERVATIONS	Date	1		1		1
	WATER LEVELS	L 3-VE			 		
i	Static Water curve Symbol v	Tirne			 		
1					 	· ——	

SENECA Environmental Services Inc.

Loc. Job Geo	ect Marley Pumb stion Daysoport Idea No. 8469 Digist/Engineer 11 Crew Milts/Stribli			Tathi Cepth of Hole 25.0 feet			
DI PEET	NET CORMINCLIAN DELYIF	=	3	LIMOLDEY	SEICHPTION		
-0			-	e a	Brase - Topsell		
-5				a a	Bilty Clay, brown, no odor		
4			I		Enlty Clay, Slight ador, dark gray		
-e			I		Clayey Silt, light gray, ne oder		
-10					-		
-12			,		Clayey Siit, light brawn with fine grains of sand, no uder, dasg		
-14	1		Ī				
15			Í	131			
-18					Silty Clay, dark gray, sebedded with fine to medium grained send, no edor, domp		
-50	Ϋ́				Clay, gray-green, wet, no ador		
-55				d Community Community			
-24							
-26					Total Depth = 25.0 Feet 2013 Seeple = 8-0-EM1. 8-7-EM1 5-14-EM1		
-58	}				Woter Sample - 8-6011		
-30	1				<u> </u>		

- D. List the vapor equipment tited. Describe its use and evaluate conclusions drawn from vapor results and calibration approach area. Equipment must be calibrated at the beginning and end of each day at the site, at a minimum.
- A Mirro Tip Photionization Detector (P1D) was used to conduct a only super headspace analysis and conduct a breathing some health and safety survey. A representative soil sample for each LG foot(2.5 foot section was placed into a pre-ticancel soil jar or a sealable plantic hear. Alumineta foil was placed tightly over the soil jar. The soil jar/sealable plantic hear was allowed to vaportize for at teast 10 misustes prior to analyzing the headspace with the P1D. The P1D equipment was calibrated prior to, during, and/or after sampling precedures.

During the throber 1992 investigation, the soil vapor headspace results indicated that 6 ppm handspace was evident for all buring escopt MW-3. The 15.0 - 175 500; interval indicated a 141 ppm reading. This sample was collected for laboratory analysis. The PB was reading properly on MW-1 for the interval 1.5-1 feet. The PB was recalibrated and legan working properly thereafter.

During the October 1993 investigation, PID readings were as follows:

Buring d-1 = 2 = 4 feet: 2.3 ppm; 4 = 6 feet: 8.2 ppm*; 6 = 8 feet: 2.9 ppm; Buring B-2 = 2 = 4 feet: 2.7 ppm; 4 = 6 feet: 3.3 ppm; 6 = 8 feet: 0.2 ppm*; Buring B-3 = 2 = 3.5 feet: 0 ppm; 3.5 = 5.5 feet: 0 ppm; 6.5 = 6 feet: 0 ppm; 7 = 9 feet: 0 ppm; 9.5 = 11.5 feet: 0 ppm; 12 = 14 feet: 0 ppm; 14.5 = 16.5 feet: 0 ppm; 17 = 19 feet: 0 ppm; 17 = 19 feet: 0 ppm; 17 = 19 feet: 0 ppm; 17 = 19 feet: 0 ppm; 17 = 19 feet: 0 ppm; 17 = 19 feet: 0 ppm; 17 = 19 feet: 0 ppm; 17 = 19 feet: 0 ppm; 17 = 19 feet: 0 ppm; 17 = 19 feet: 0 ppm; 17 = 19 feet: 0 ppm; 17 = 19 feet: 0 ppm; 17 = 19 feet: 0 ppm; 17 = 19 feet: 0 ppm; 17 = 19 feet: 0 ppm; 17 = 19 feet: 0 ppm; 17 = 19 feet: 0 ppm; 17 = 19 feet: 0 ppm; 17 = 19 feet: 0 ppm; 18 = 14 feet: 0 ppm; 18

Tebulate Daily Calibration Data In The Chart Below								
DATE	CA: Standard	LIBRATI Staft	(PPM)	End	F PATE	Standard Sta	IBRATION (PPN) LTE During	Ind
14142	المراج المارية		t.	١	3			
11-642-	1 " 3 1		£1	7 _C	Ī	1 1	1 1	
114142	h	<u>r</u>	C	T c	I		1	
101/43	1 .	. <u></u>	-	1 c	i i	Î	- I - I	
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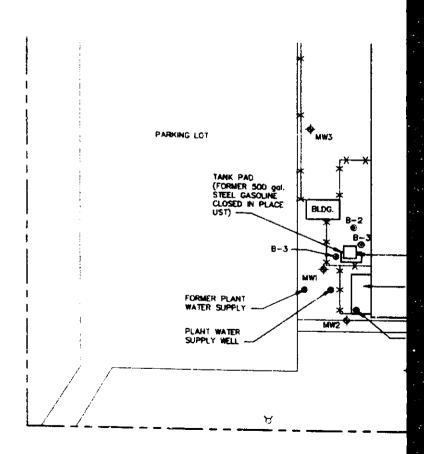
E. Describe roal sample collectors methods and explain why the methods perovide a representative mample. Split spoon and hollow stems majors producing a continuous serve as acceptable are in campining devivous. As a minimum, sell mamples must be sollected at 5 foot inservals and when changes in the formation occur for notal observations, vapor accessing and other indicated analyses.

Sell annuling was conducted by using hollow-stem augers. During the Decodor 1992 inhustigation, 5-foot long split apasses were pushed into the sell street. This method allowed for a relatively non-distanted simples with resolvely full recovery for each five first unterval. For case of obtaining representative sell anaples, the 5-foot split spoon was manually divided into two-2.5 foot sections. Each section rus split in half and approprient namely sections were collected into approprience only invasible plants to happen from the publication of the property of the section were collected into approprient or anaples from the subsurface (Sell samples were collected into approprient were positioned without continuously or every 2.5 foot. The spoons were device the spaces incide by an hydrogical beammer. Solls were recreased from the optimises of 100 manyles in the same filteness as the October 1992 investigation.

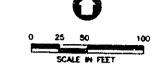
>> T. Attoch Appendix "ID(2) - Soil Contemination Planne Mage" Provide soil contemination plans map depicting the Soil extent of web-

Provide and commination plans may depicting the full entent of videos zone salls according the sall contembration according to sall contembration according to the plans. The course of off-site sail operational great is investigated. Label being location with the parents by depocation with the parents by providing and to determine the extent of the plans. The copy must contain a pufficient number of done points to adopt which the construction of plans contest flams. Identify the construction of plans contest flams. Identify the construction of plans contest flams.

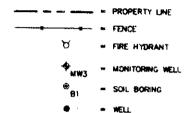
APPENDIX II(F) - SCALED VICINITY MAP



EAST 59th STREET



LEGEND



NO PRODUCT LINES OR DISPENSERS WERE USED FOR 500 gol. UST. THIS WAS A TEST TANK ONLY.

UST a

- 1 -- 500 GAŁLON MANUFACTURED STEEL GASOLINE UST. NO PRODUCT LINES, FILL LINES, OR DISPENSERS ASSOCIATED WITH THIS UST. ADANDONED IN PLACE 8/87 -- 19/87.
- 3 580 GALLON DOUBLE WALL STEEL WITH STIP3 TANKS. THE UST'S WERE INSTALLED 3/92 AND CONTAIN UNLEADED GASCLINE OR METHONAL. NO UNDER YARD PIPING --ALL ABOVE GROUND. NO FUEL IS DISPENSED. FUEL IS RECIRCULATED BACK TO TANKS. THESE ARE TEST TANKS ONLY.

SCALED SITE PLAN

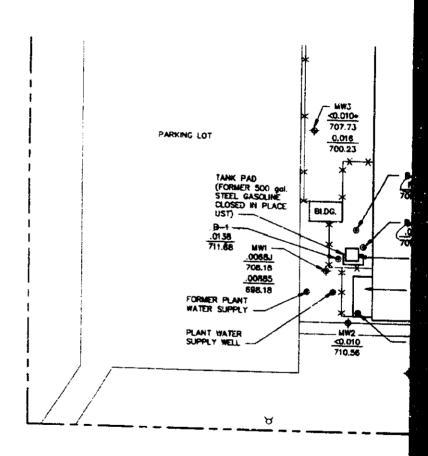
The Morley Pump Company 500 E. 59th Street Davenport, lowa

MANUFACTURING BUILDING

SHED

LEAN TO (OPERATING UST SYSTEM)

FORMER TEST WELL OFFICE GUILDING



347 -- -N56

EAST 59th STREET



0 25 50 100 SCALE IN FEET

LEGEND

- PROPERTY UNE

------- = FENCE

T = FIRE HYDRANT

MW3 - MONITORING WELL

e SOIL BORING

= WELL

= ESTIMATED VALUE
CONCENTRATION BELOW
LABORATORY DETECTION
LIMIT

0088J CONC. OF TPH IN PPM
09.18 SOIL SAMPLE ELEVATION

. DUPLICATE SAMPLE YIELD EXACT RESULTS

NOTE:

MW1, MW2, & MW3 WERE USED TO DETERMINE IN-SITU HYDRAULIC CONDUCTIVITY. A LABORATORY PERMEABILITY TEST WAS CONDUCTED FROM SOIL COLLECTED FROM MWZ.

ELEVATIONS WERE MEASURED AGAINST MEAN SEA LEVEL.

NOT ENOUGH DATA POINTS FOR A PLUME MAP. MW4 DATA COLLECTED ON 10/19/93

SOIL CONTAMINATION PLUME MAP

The Marley Pump Company 500 E. 59th Street Davenport, lowa

MANUFACTURING BUILDING

.68

.18

74.0

EAN TO OPERATING UST SYSTEM)

ORMER JEST WELL

ND 705.61

A. Boring number and placement.

Explain and purely the rationale used to determine the number and placement of groundwater monitoring wells. Factors that Bould be taken and communication when developing the rationals include one strangengly, made conductivity, mobility of information and domains of the release. The number and placement of wells must be sufficient to allow the 1) determination of the internal and vertical existent of groundwater contamination. 2) accurate description of size strangengly, and 3) identification of the transition more netwest those areas that do and do not exceed the contamination classical level. The identification of the transition more netwest those areas that do and do not exceed the contamination classical level. The identification of the transition more netween the contamination of the transition and materials the location of contamination of data. Additional information will be required to submation the location of contamination of data-manded that the lines are not consistent with the retionals or data provided, or the misrpolation terbination in the questionable.

Consideration of horing placement was given so that the most data can be obtained from one desirable soil baring/monitoring well location. Restrictions of boring/monitoring well placement included utility location, equipment size, and obstructions. Furthermore, rules and regulations of the IAC 135 were considered for soil buring,monitoring well placement. Four monitoring wells were chosen to belp develop a groundwater routour stap. Also, the wells were placed in such a way so as to help determine the extent of contamination (lateral and vertical), provide background data, and verify other consultants data.

(See Section 11) - Noti Sampling Methods and Findings, Page 8 of 20, for further details on boring/consisoring well placement).

Three soil berings were drilled as close as possible to the abandoned to place UST. The purpose of these borings was to determine if percolous hydrox-ricous are prevalent in the subsurface close to the UST. Boring placement was restricted by size of equipment and prushmits of utilities to the selected borelose.

> B. Attack Appendix "IV(B) - Monitoring Well Construction Dingram" Response and attack a DNR form 542-1392 for each monitoring well constructed at the site.

- C. Explain permanent monitoring well construction. If the following well construction material or dimensions vary, indicate the variations on DNR Form 542-1392.
 - 1) method of cleaning well components prior to installation. Steam cleaning: 3000 pti with water temperatures of 200° F.
 - 2) cause and somen material. 2-inch dismeter flush threaded PVC
 - 3) screen slot size. 0.010 marrier slotted
 - 4) how the sections of camers and screens are connected. Flush threaded johns.
 - 5) method used to unstall filter pack and stale. See surecon ween t
 - © actions taken to prevent cross-communication of wells during construction and marging.

 The mealuring wells were pressure steam washed prior to their insertion into the herefule. Clean inten gloves were used to headle all downloads materials.
 - 7) monitoring will development procedures.
 - Bail with a per-classed (Alconos and distilled water) 5-feet long bailer. Bail either 3-5 well volumes of water until 9h, specific conductivity, and bemperature are stable, or until dry. In this case, the wells were developed until dry.
- D. For samples collected from boreholes: (Fragancy saving out some on require prior to annula collected.)

 1) Describe the type and use of fraganity casing and screen.
 - ·/ ··········· //·· -- · · · · -- / ···· / · · · · ·
 - 2) Explain and justify the adequacy of well development percentures to mount a representative stuple.

Boring/Well MW-1			Y PIND CO	Focili MPANYI Addre	ty 500 E.	59th ST. ORT, IOW	
Boring Dept	n (Feet) x	Diameter	(Inches)		a Mathad		EM AUGER
#eli Contra. Registration	ctor NDEC	00 INC 0007201	25-	C099	ed by	CALF &	
Date & Trne Start	9/16/92	Date &	9/15/92 nd 1020	2) Ground Surt		<u>د</u> ا	Lust Number 8LTS84
Depth in Feet	Well Constr Detoil	no.134	Blos Count	Sample No. *ype *	PO/FID Reading	Color	k Formations, Soil, and Classifications, ations (maisture, eli
							4"x4"x8" Bumper
		-	hei:	-		Posts	ploced pround well
	Ş	+>	Top	of Cosing (TOC). ock		1	
	ii	1					
72.0			Jane	rete Gallar (2 ft	1 x 2 ft)	-	
Viauno Surtoce		1				j	
	• • •	-		long Steel Prote	ective Cover		
		· • • •		trete Seal		į	
50 m	~~	1	Bore	hole = 6.25 and	rues 0.D.		
		11.7					
		122		ch OD 40 PVC Rissor			
		1/1/7		ient/Bantonita (5	~ 4 5)		
I :			Grau		- ,		
. 11 C H	777;	1				1	
13.0 +	==1			rated Bentonite	Cheps		
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48 **	H					İ	
ì			ı				
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1	7 F K1						
1	k # #	* * *		nch O D		İ	
;	2 R M		SCH	ten (1) 1 40 PVC Screen 10 inch	ı		
!		* * *		tory Slotted			
24.8 ft		. v x					

Static Water Lave Symbol v

SOIL BORING LOG & MONITORING WELL CONSTRUCTION DIAGRAM Boring/Well # **Facility** Facility 500 E. 59th ST. Name MARLEY PUMP COMPANY Address DAVENPORT, ICWA MW-2 Boring Depth (Feet) x Digmeter (Inches) Drilling Method HOLLOW STEM AUGER INDECC INC Well Contractor Logged by METCALE & EDDY Resistration # D. 0007201 9716792 Date & 9/16/92| Ground Surface Time Stort 1110 Time End 1220 71550 Elevation (ASL) Number 8LTS84 Contr Well Construct on 210/F10 Rock Formations, Soil, Blow e Feet Details Count Reading Color and Classifications. Observations (moisture, etc.) Two 4"x4"x8' Bumper Posts ploced ground well Top of Cosena (TOC) Podince -- Concrete Collar (2 ft x 2 ft) 50 **"** (4 pund Surface 5 11 long Steel Protective Cover Boranole = 6.25 inches C.D. 2 mch 0.0. SCH 40 PVC Riser Cament/Bantonite (5%) Grout 9 € 10 - Hydroted Bentonite Chips - Filler Pock 2 inch Q.D. SCH 40 PVC Sareen 0.010 inch Factory Slotted + SS (sp./t appen) HS (hollow stern cuger) ORSERVATIONS Date 9/10/92 | 10/20/13 17.59 WATER LEVELS 16 59 C Brook Static Water Level Symbol v 1230 DUXC

2

SOIL BORING LOG & MONITORING WELL CONSTRUCTION DIAGRAM Boring/Well # Facility Focality 500 E. 59th ST. Name MARLEY PUMP COMPANY Address DAVENPORT, IOWA MW-3 Erilling Method HOLLOW STEM AUGER Boring Depth (Feet) x Diometer (Inches) INDECC INC Well Contractor Logged by METCALE & EDDY 10, 0007201 Registration # 9/16/92 Date & 9/16/92) Ground Surface 75 23 Time start 1330 Time End 1450 Elevation (ASL) Number 8LTS84 PID /FID Rock Formations, Soll. Depth Well Construction Biom Somole r Feet Detoxs Reading Color and Classifications. Count Observations (moisture, etc.) T-000 Three 4"x4"x8" Sumper Posts placed around wall Well Cap - Top of Casing (TDC) - Padloct Concrete Coslar (2 ft x 2 ft) 0 ** Ground Surface 5 ft long Steel Protective Cover Concrete Seal 2 mch 0.0. SCH 40 PVC Riser € 6 15 - Hydrated Bentonite Chips 90 1 11.0 - Borehole = 6.25 inches 0.0. - Filter Pock 2 inch O.D. SCH 40 PVC Screen 0.010 mah Foctory Slotted \$5 (solit spoon) HS (notice stem auger)

Commercial States Contact 2 to the

Boring/Well	# Facilit			500 E. 59th ST DAVENPORT, 10	
	n :Feet) x i	Diameter (In		had	TEM AUGER
Nev Contro Registration	ctor TERRA	CON CONSU		D. STORY METCALF &	EODY
ote & Ime Start	10/19/93 1340	Date & 1 Time End	0/19/93 Ground Surface 1505 Elevation (ASL)	715.11	Lust Number 8LTS84
Dapth n Seat	Well Constru Details			Reading Cali	ock Formations, Soil, or and Classifications, vations (maisture, sta
GC H Ground Surface	10000 00000 00000 00000	50000 10000 10000 10000 10000	- Well Cap	1	
90 **	N K N N N N N N N N N N N N N N N N N		Burenove = 6.25 inches 0.	D	
	* # # # \\ * # # # # #		2 inch 0 B. 3.010 inch machine Skitted PVC		
'9 D ++ '9.5 #	3 X X		3.5		

10/20/93

Dota Lavel :

HS (hollow stem ouger)

• SS (aprit appoin)
OBSERVATIONS
WATER LEVELS

E. Explain and justify the adequacy of groundwater sampling and well purging methods.

Well purging: The monitoring wells were purged with a pre-cleaned PVC baller and new rope. Usually, 3 - well volumes of water are removed so that new groundwater, more representative of the aquifer, will be sampler. One well volume is calculated as: 3.146/ph * . 46 galft*. In this case, the wells trere purged dry. Groundwater sampling: Groundwater samples were callered from the four on-site monitoring well was placed immediately into 40 ml, viai, placed on see (4° C), and shimped by express courier to Snothwest Laboratory of Oktoburns.

F. Groundwater Data for Contour Map Development (SURVEY DATA FROM ABJACENT SITES MAY BE UTILIZED)

Weß/ Borneg Nomber	Date Measured	Status Water Level (ASL) (to 0.01 ft.)	Water Level Corrected due to Free Product ('Iss/No) Freduct Depth			Ground Surfa Elevation (Al to 0.1 R)		
Hu - 1	14/1/12 1	85.04	1 1/6	I	o	inches	43.4 5	
HW-2	14/17/62 1	£2 12	1 1/6	I	o	inches	43.74	
Hicks	13/1792 1	55 BB	1 1/3	i	0	inches	97.50	
	1 1			1		inches		
1466-1	Ninge 1	ي ان جي	1 /2	ŀ	٥	iactes (11.95	
Mu 2	10/1/12 1	\$4.64	ט'רא	l	O	indes (91.79	
Mul	1 11/10-1	57 85	1 1/0	ı	D	inches	97.50	
	1		!	1		inches		
11W-1	1/2/1/9/1/3 1	102.13 (AS	~) 1 %.	I	Ľ	inches	7:5.66	(ASL)
	1 10/13/13 1	10 25	بر) ا (ب <u>ـ</u>	ł	0	inches	715.56	(ASL)
1	1/1/19/13 1	103.37 (A:	L) 1 %]	0 0	inches	7:5:15	(Au)
.,	1 -100/95	£90, 95 (4º	1 N.	ţ	_ c	inches	7/5-11	(Asu)
	1 1		<u></u>	1		saches		
	1 1		1	į		iaches		

^{*}Describe below the correction method used to determine the state water level.

Secure product was not on the water surface, correction methods to determine the static water level were not necessary.

Describe: th' beachmark used to survey for groundomer surface elevations.

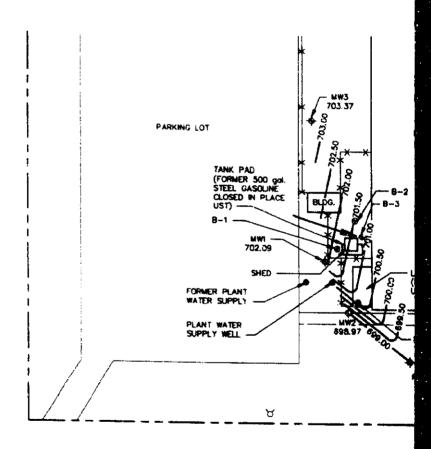
The horings/mentioring wells were resurveyed (ASL) using a manhabe cover incated southwest of the Marley Point Lompany. On top of a pump house, and 700 for cost of 8 pump house, and 700 for cost of 8 pump house, and 700 for cost of 8 pump locate, and 700 for the City Engineering Department of Devenport, Issue.

>> G. Attack Appendix "IV(G)- Groundwater Contour Map" Provide a groundwater contour map based on work does at the site and the edje

Provide a groundwater contour map based on work done at the nite and the adjacent zero. All wells at the site annel be shown on the steen steel promotives flow discontion with on anyon. Groundwater constructed in different any first mant be rismanfied. Indicates the parameters and devotions of such that point tend fire construcing most to blocked on the map. Commers ament be commissed with charged water level elevations. Measurements of state water level and depth to the bottom of the wells must be platen. An adequate number of water levels must be measured in each well to determine the state water level. Static water levels must be measured in the part of the part levels must be measured to the number of the part levels. Static water levels must be measured to the number level.

Explain permanent monitoring well construction. Page 10 of 20
 Method to install filter pack and seals.

The material was placed in the annular space of the hollow stem auger and monitoring well by pouring sand from a bag and bentonite pellets from a bucket. As the materials were placed into the annular space, the hollow stem augers were incrementally raised so the material (sand, bentonite pellets) would fall out of the augers and between the well and native soil. The cement was place into the annular space by pouring the mixture from a wheelbarrow (the annular space, when filled with sand and bentonite pellets, was shallow enough that pouring was more feasible than a tremmie pipe).



EAST 59th STREET



0 25 50 100 SCALE IN FEET

LEGEND

---- -- PROPERTY UNE

702.50 - GROUNDWATER CONTOUR

----- = FENCE

ヴ = FIRE HYDRANT

MW3 = MONITORING WELL
703.37 = GROUNDWATER ELEVATION

B1 = SOIL BORING

- WELL

APPARENT GROUNDWATER
FLOW DIRECTION

EAN TO PERATING ST SYSTEM)

MANUFACTURING BUILDING

OFFICE BUILDING

NOTES:

MWI, MW2, & MW3 WERF, USED TO DETERMINE HYDRAULIC CONDUCTIVITY.

ELEVATIONS WERE MEASURED AGAINST MEAN SEA LEVEL.

GROUNDWATER ELEVATION DATA COLLECTED ON OCTOBER 20, 1993.

GROUNDWATER FLOW DIRECTION - EAST

GROUNDWATER CONTOUR MAP

The Marley Pump Company 500 E. 59th Street Davenport, lowa H. Describe and explain the following:

- I) identify the methodology and driven used to determine static groundwater levels.
- As interphase probe (IP) is a device used to measure the level of both free-phase hydrocurbons and water. The nater level measurement, yet taken on the north side of the top of the PAC ensing. The nater level was recorded when an audible tone was evident. The IP is appain of normaring water to within 9 01° accuracy.
- 2) provide confirmation that he methodology used will provide the required levels of accuracy.
- The Micro Tip beins the user through a 12-step process to ensure that the PHD is calibrated appropriately. The Micro Tip is calibrated to display encertration to shift equivalent to post. First, zero air, which contains no indicable gates or unport, is used to set the new point. The span gas, containing a harm concentration of a plusionalizable gate or vapor, is used to set the sensitivity. But industylene, at 100 pper as air, is recommended as, was used dering all calibration proceedures.
- 2) groundwater flows and air magnitus waste levels.

Assembleus groundwater hirely did not runt during this sampling round.

4) fluctuations in water leves with special emphasis on those which they after general promisenter predient or flow direction.

No change of groundwater flow direction occurred during this sampling gerard. Static water levels were taken on September 16, 1992; (Icobay 2, 1992; and October 19 and 20, 1993.

> > I. Attach Appendix "TVD - Groundwater Contemination Plume Maps"

Provide groundwister consequenties phase maps descring the full estent of free phase product and districted plane communication according the groundwister corrective action levels under 135.7(9) and the levels of groundwister contamination within the plane. The extent of off-nie groundwister contaminates on time be investigated. Label each data point with the contaminate someoment of data point with the contaminate observations and to data-remain the extent of the plane. The map must contain a sufficient available of these points to adapte only investigated to contain the state of the plane. The map must contain a sufficient available of these points to adapte only the pounts of the plane.

. Sampling Quality Courted

(Confine Your Answer to the Space Provided

Provide a materiant that indexes the quality control/quality assumnon (QC/QA) proculture used during the old investigation over at least so ratingest to team emission in IDNR's Leaking Underground Storage Test Quility Assumnce Plan.

The Markey Pump Company's consultant, M&E, followed IDNR's QA/QC plus if not more stringent QA/QC providence. M&E's prepared a QAPF to conduct this field work. It exceeded those requirement required by IDNR.

VI. Hydrogeological Cross-Sections

> Attach Appendia "VI - Hydrogeological Cross-Section Diagram"

Develop. From the horsings are were required to identify the extent of continuous on, areagraphically correlated hydrogeologic cross-sections or three-dimensional diagrams which adequately define the upstal relationships of volumeters measurable at the site. The sections should illustrate the metersals in the continuous none. The sections or diagrams must include the following information:

- 14 Educatification of Types and Characteristics of the geological materials present.
- 7) Identification of contact from between different geological materials, noting zones of high permaskelity or fracture.
- 3) Detailed borohole infrarestes including focation, depth of termination and some of interation.

VII. Hydraulic Conductivity (CONFINE YOUR ANSWER TO THE SPACE PROVIDED)

A. Determine and record here the hydraulic conductivity of substrace materials at the site. Monthly bookings and wells mad to determine systemic conductivity. Include calculations and data used to obtain the value.

The Basser-Rice cateulation for hydraulic conductivity was used. Buildown tests were performed in three monitoring wells: MW-1, MW-2, and MW-3 because of the selform stratigraphy across the site. Hydraulic conductivity test was not conducted in MW-4 because of the selform stratigraphy across the site. Hydraulic conductivity tests were performed to illustrate the uniform magakutod across the site.

(See introduct for "accurations of acredication by)

B. Indicate the method and.

LEGEND

PROPERTY LINE

FENCE 4 FIRE HYDRANT

MONITORING WELL

WELL

- NONE DETECTED

(.0079)= UNITS IN mg/1

> - ESTIMATED VALUE CONCENTRATION BELOW LABORATORY DETECTION

FREE PRODUCT NOT PRESENT

THIS MAP DEPICTS ONLY THOSE LEVELS THAT EXCEED THE IOWA STATE ACTION LEVEL FOR BENZENE - .005 mg/1.

INSUFFICIENT DATA FOR CONTOURS

DATA COLLECTED ON 10/26/93

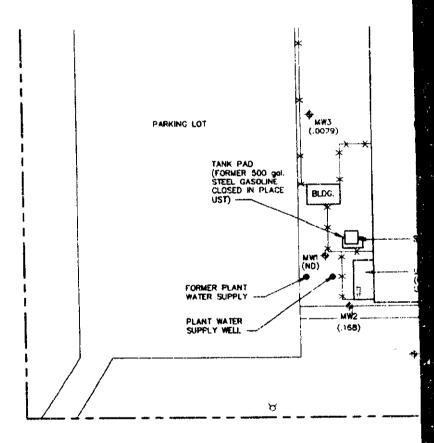
BENZENE GROUNDWATER CONTAMINATION

PLUME MAP The Mariey Pump Company 500 E. 59th Street Davenport, lowa

METCALF & EDDY

MANUFACTURING BUILDING

PERATING ST SYSTEM)



EAST 59th STREET

100

SCALE IN FEET

- - PROPERTY LINE

- FENCE

전 = FIRE HYDRANT

MW3 = MONITORING WELL

WELL
ND - NONE DETECTED

(.0029) = UNITS IN mg/1

 ESTRATED VALUE CONCENTRATION BELOW LABORATORY DETECTION UNIT

FREE PRODUCT NOT PRESENT

ETHY, BENZENE CONCENTRATIONS DID NOT EXCLED THE IOWA STATE ACTION LEVEL OF 12.0 mg/l. THUS, NO PLUME WAS CONSTRUCTED.

INSUFFICIENT DATA FOR CONTOURS

DATA COLLECTED ON 10/20/93

ETHYL BENZENE GROUNDWATER CONTAMINATION PLUME MAP

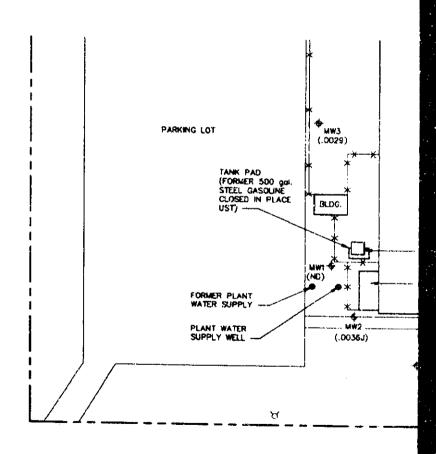
The Martey Pump Company 500 E. 59th Street Devenport, lowe

MANUFACTURING BUILDING

P(ED

EAN TO OPERATING UST SYSTEM)

MW4 (ND)



EAST 59th STREET





LEGEND

FENCE

ਰ

- FIRE HYDRANT

♦ MW3 - MONITORING WELL

•

- WELL

ND

- NONE DETECTED

(.9256)

- UNITS IN mg/s

 ESTIMATED VALUE CONCENTRATION BELOW LABORATORY DETECTION LIMIT

FREE PRODUCT NOT PRESENT

TOLUENE LEVELS DID NOT EXCEED THE IOWA STATE ACTION LEVEL OF 2.42 mg/l. THUS, NO CONTOURS WERE CONSTRUCTED.

INSUFFICIENT DATA FOR CONTOURS

DATA COLLECTED ON 10/20/93

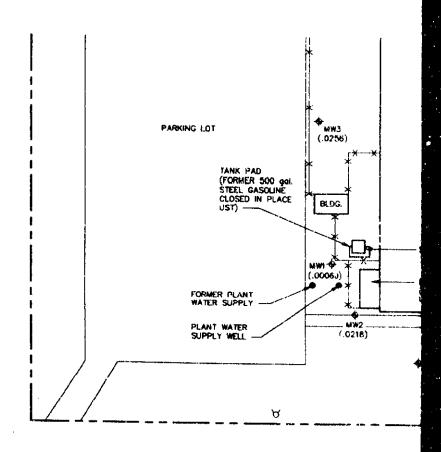
TOLUENE
GROUNDWATER
CONTAMINATION
PLUME MAP

The Marley Pump Company 500 E. 59th Street Dovenport, lowa

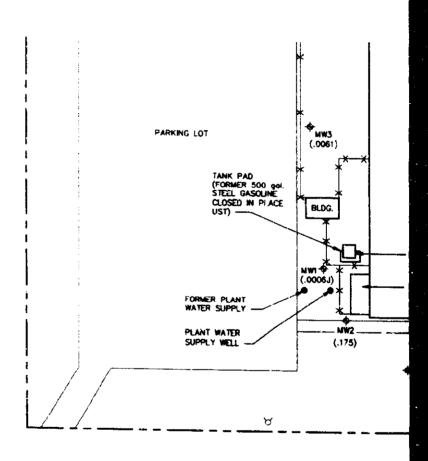
MANUFACTURING BUILDING

HFT)

ean to Operating Ist system)



EAST 59th STREET



EAST 59th STREET



0 25 50 100 SCALE IN FEET

LEGEND

---- - PROPERTY LINE

= FENCE

T = FIRE HYDRANT

♦ = MONITORING WELL

- WELL

ND - NONE DETECTED

Nem IN 27 (1800.)

ESTIMATED VALUE.
 CONCENTRATION BELOW
 LABORATORY DETECTION
 LIBIT

FREE PRODUCT NOT PRESENT

XYLENE CONCENTRATIONS DID NOT EXCLED THE IOWA STATE ACTION LEVEL OF .7 mg/l. THUS, NO PLUME MAP WAS CONSTRUCTED.

INSUFFICIENT DATA FOR CONTOURS

DATA COLLECTED ON 10/20/93

XYLENE GROUNDWATER CONTAMINATION

PLUME MAP

The Marley Pump Company 500 E. 59th Street Davenport, lowa

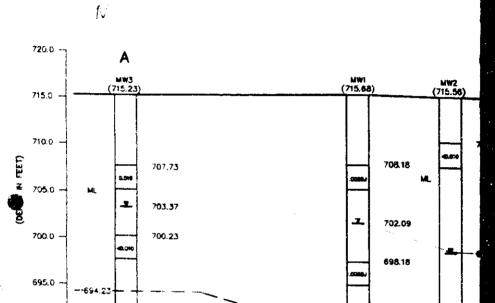
METCALF & EDDY

i

MANUFACTURING BUILDING

EAN TO OPERATING UST SYSTEM)

MW4 (ND)

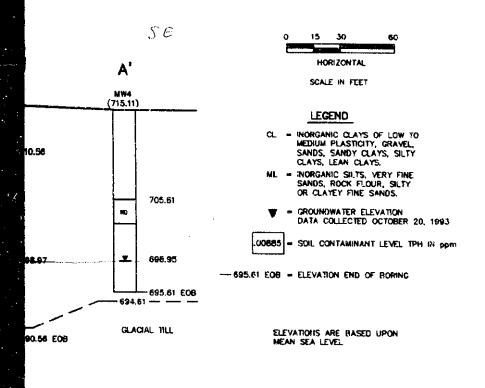


-- 691.56 ---690.68 EOB

GLACIAL TILL

690.23 EOB

590.0 -



HYDROGEOLOGICAL CROSS SECTION

The Marley Pump Company 500 E. 59th Street Davonport, Iowa

HYDRAULIC CONDUCTIVITY - FIELD AND LABORATORY

SUMMARY OF EQUATIONS FOR DETERMINING HYDRAULIC CONDUCTIVITY, K:

$$K = \frac{R^2}{2L(T(2)-T(1))} \cdot \ln\left(\frac{L}{R}\right) \cdot \ln\left(\frac{H(T(1))/H(T(0))}{H(T(2))/H(T(0))}\right) \quad \text{EQUATION (1)}$$

WHERE:

K = FYDRAULIC CONDUCTIVITY

L = LENGTH OF WELL SCREEN

R = RADIUS OF WELL

I = TIME IN SECONDS FROM START OF TEST

H = DIFFERENCE IN WATER HEAD BETWEEN WATER LEVEL AT TIME "T" AND THE STATIC WATER LEVEL

MONITORING WELL MW-1

$$K = \frac{(0.08)^2}{2 \cdot 12.18(12,600 - 3,600)} \cdot \ln\left(\frac{12.18}{0.08}\right) \cdot \ln\left(\frac{0.31}{0.06}\right)$$
 EQUATION (2)

$$K = 2.59 \times 10^{-1}$$
 fifted
 $K = 7.88 \times 10^{-6}$ cm/sec

EQUATION (3)

$$K = 7.88 \times 10^{-1} \text{ m/sec}$$

 $T \approx 2.86 \times 10^{3} \, \text{m}^{3}/\text{sec}$

2) MONITORING WELL MW-2

$$K = \frac{(0.08)^2}{2 \cdot 7.18(9,000 - 3,600)} \cdot \ln \left(\frac{7.18}{0.08} \right) \cdot \ln \left(\frac{0.30}{0.14} \right)$$
 EQUATION (4)

$$K = 3 \times 10^{-7}$$
 ft/sec
 $K = 9.3 \times 10^{-6}$ cm/sec

EQUATION (5)

$$K = 9.3 \times 10^{4} \text{ m/sec}$$

 $K = 9.3 \times 10^{4} \text{ m/sec}$
 $T = 2.2 \times 10^{4} \text{ m}^{2}/\text{sec}$

$$K = \frac{(0.08)^2}{2 * 11.6(9,000 - 4,800)} * in \left(\frac{11.6}{0.08}\right) * ln \left(\frac{0.41}{0.29}\right)$$
 EQUATION (6)

 $K = 2.6 \times 10^{-7}$ frime $K = 7.9 \times 10^{-4}$ cm/sec $K = 7.9 \times 10^{8}$ m/sec $T = 7.33 \times 10^{3}$ m²/sec

EQUATION (7)

Metcalf & Bddy Hydraulic Conductisity

90257-01

Boring of MW-2 Depth 25-28

Description: CL Gray green also sandy lean day with trace organics

u 19% 74 1i1.i poř Gr 2.6k

Hydraulic Oneductivity:

1.5 x 10° cm/sec

@ hydraulic graciicat = 6

Tosted in accordance with ASTM D 5084-90.

The data gathered for this sample was collected from a Shelby tube. The soil was collected from MM-2, below the silt strats.

- C. If an operation method was used to determine conductivity, evaluate its accuracy,
- D. Explain why the location/number of data points where hydraulic conductivity was determined adequately provides a representative indication of conductivity at the sits.

Hydraulic conductivity tests were performed in each well (except MW-4) to illustrate the uniform magnitude across the site (all data was within one under of magnitude).

III. Receptor Survey

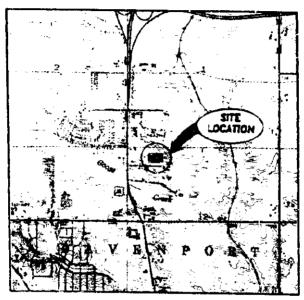
- >> Attack Appendix "VIII Receptor Survey Map"
 Provide a niu avec may that identifies the follower:
- A. Surface Water Body Survey. Location of surface vater badies (i.e.) shan, peads, rivers, attentes, (ii.) within 1000 fast of the petaclosen conteminated area. Include an evaluation of the petaclosed for hydrogentagical connections between the contemination and continuous vater. Justicity the destinate to end or conduct mentioning to determine the impact of contemination on surface water quality. Greb samples are applically collected in determine the impact of contemination on surface water quality. Stemples takes systems of the volume one help combined to be background levels for the compress of connects. Subsequent face of the determine of the surface water beautiful that development of connects. Subsequent beautiful to the development of the sampling methodology and evaluate the adequacy of the sampling program. Takedon the malytical results. Also remote visual observations (i.e., short, subdge, strum, etc.). Label the acception and control results in Appendix VIII personne to the above with the heading Seriface Body Respects Energy.
- B. Condust Survey. Locators of whity i.e., power lines, soom and maintry severs, the lines, etc.), netwell (i.e. middates, caves, etc.) condusts and confined spaces (i.e. basesseets, crawl spaces, etc.) within 200 feet of the seem of perceives constantionates. Include a description of the seventypines conductated to determine the potential for the conducts to set as parkway for vapors and product. The investigation soon architecture is suspis collections for leboratory analysis and vapor mentioning. The forces of the avvestigation should be influenced by sool types, product types, phases and concentrations, location and shape of whilters and confined spaces and generalized presents and confined spaces. Conduct and trutch, and relationship to groundwater levels. Tabulator the analysical results Indicate if consentantion has resulted in the presence of expiciency supers or caused physical desings to conducts or confined spaces. Label the next relation and appearance of expinitions or the presence of expinitions with the presence of "Conduct Survey."

The following are recommended when conducting a vapor survey in an accessible utility conduit:

The vapor survey is required if facre are reports of vapors or if the conduit has been impacted by the contamination or of there is the potential for vapors based on the type of substance release.

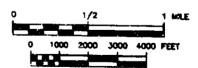
- 1) Use an employimeter and photoingization descent; (PID) to take super readings. Start at the meaning element to the site. Work approximate and downstream to determine if and where the product or supers are entering, and the extent of the imposed sens. Inch.* such many cover and take readings of exygen, explosurems and PID. Report agreements at mid-depth and vester lovel or betters of the conduct.
- 2) Chack sir flow directions from the asserting to determine if diluting of vapors is occurring.
- Collect water or arrange steephs. Churve for these and odors. If there is odor but no product, consider using the PID in obtain a lased space analysis.
- Check all incoming conduct branches. If others are detected, continue the investigation systems; and development over if no product is present.
- 5) Clock Sit stations near the site.





SOURCE: U.S.G.S. DAVENPORT EAST, IOWA - ILL. (1975)

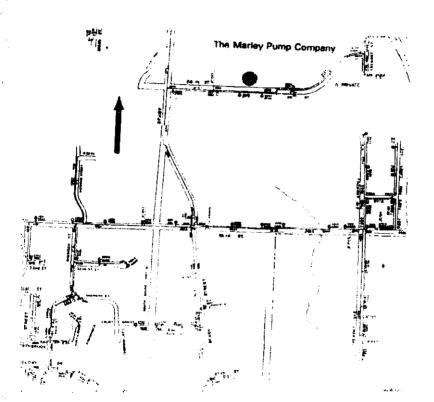
SCALE: 1:24000



RECEPTOR SURVEY MAP SURFACE WATER BODY SURVEY

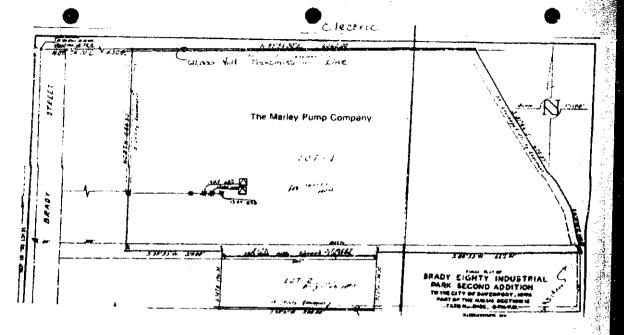
The Marley Pump Company 500 E. 59th Street Davenport, lows

METCALF & EDDY



RECEPTOR SURVEY MAP

The Marley Fump Company 500 E. 59th Street Devenport, lows (Weter - Cast fron)

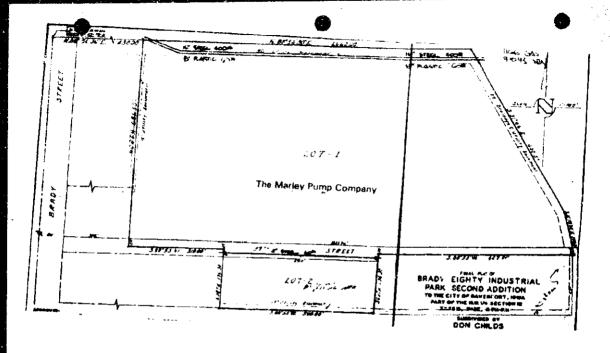


RECEPTOR SURVEY MAP CONDUIT SURVEY

The Marley Pump Company 500 E. 59th Street Devenport, lows (Electric)

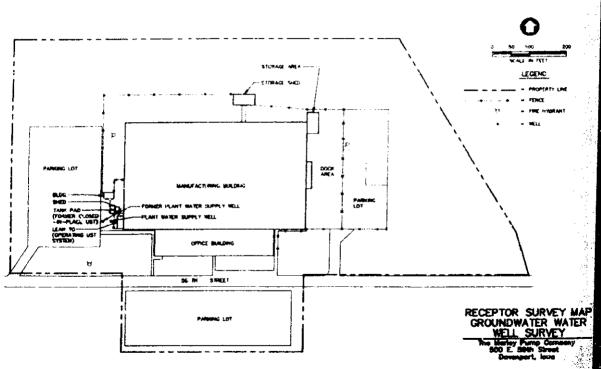
RECEPTOR SURVEY MAP CONDUIT SURVEY

The Marley Pump Company 500 E. 59th Street Devenport, Iowa (Sewer - Clay/Concrete Piping)



RECEPTOR SURVEY MAP CONDUIT SURVEY

The Marley Pump Company 500 E. 59th Street Davenport, Iowa (Natural Gas - Steel/Plastic)



METCALF & MATERIAL STATES

RECEPTOR SURVEY MAP CONDUIT SURVEY

The Marley Pump Company 500 E. 59th Street Davenport, Icwa

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NOT TO SCALE

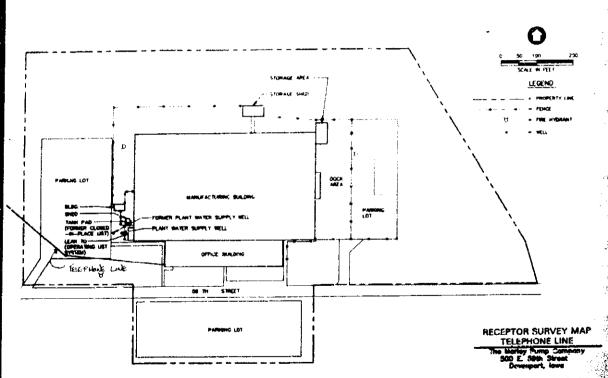
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Superior Sup

RECEPTOR SURVEY MAP CONDUIT SURVEY

The Marley Pump Company 500 E. 59th Street Davenport, lowa

METCALF & EDDY



MEACHEL & SHOW

After evaluating the U.S.G.S. 7.5 initiate quadrangle and conducting a site survey, surface water bodies such as streams, lakes, and/or ponds are not located within 1,000 feet of the designated petroleum impacted area. The closest surface water body, Goose Creek, is greater than 1,000 feet from the impacted area. Furthermore, at an average rate of K=2.61 m/year, potentially impacted groundwater would take over 100 years to reach Goose Creek.

Given the distance of the surface water body from the impacted area and the hydraulic conductivity baildown tests conducted on all three monitoring wells (MW-1: 7.88 x 10⁴ m/sec, MW-2: 9.3 x 10⁴ m/sec, and MW-3: 7.9 x 10⁴ m/sec), the impacted area is believed to be very localized. Therefore, it is not anticipated that any surface water body will be affected. Furthermore, it is not anticipated that any surface water body will be conducted.

Conduit Survey

Seneca Environmental Services (April 1992), had stated in their environmental report that a large metal pipe ran through the tank pit excavation from the water well located approximately 20-feet went of the site in the down-gradient direction. The pipe is approximately two-feet below the surface of the ground and is set directly in the clay soils, with no sand backfill around it. The pipe is situated at a level above the midline of the proposed tanks and the tank are double-walled construction. Seneca had indicated that is was not likely that this pipe will act as a conduit for any hydrocurbon migration if a leak occurred in one of the underground storage tanks. Please see the attached figure for further details.

A four-inch diameter steel natural gas main, buried five-feet below grade, runs north-south. The buried line is located east of the above ground piping area and the closed-in-place UST. The backfill for this buried pipeline is unknown. Please see the attached figure for further details.

A six-inch diameter cast iron water main, buried approximately 5 feet below grade, runs north-south. This buried line is located west of the steel gas main and directly south of the closed-in-place UST. The backfill for this line is unknown. Please see the attached figure for further details.

A ten-inch diameter concrete roof drain (storm sewer), buried two-feet below grade, runs north-south and east-west. The east-west extension of this line intersects the new underground storage facility between tanks 2 and 3. The backfill for this buried line is unknown. Please see the attached figure for further details.

A by-pass water main is located west of the closed-ka-place UST and south of the new testing facility. The depth at which this line is buried is unknown. The expected dismeter of this line is six-inches. The backfill for this buried line is unknown. Please see the attached figure for further details.

A storm sewer clean-out is located at the southwest corner of the testing area. A draining trough is located at the southern end or the testing area. The depth and construction of this trough is unknown.

Please see the attached figure for further details.

.206

A buried telephone cable is located west of the facility and runs northwest-southeast and east-west. The depth at which this cable is buried is unknown.

An electric line in buried approximately 5 feet deep and is located on the north side of the property boundary (69,000 volts) and runs into the west side of the property toward the process building (13,000 volts).

A sewer (chay/concrete) line is located on the north side of 59th street and is buried approximately 8 feet below grade.

The depth at which all the aforementioned lines are buried are not affected by fluctuating groundwater levels. The groundwater at this site ranges from approximately 11 feet below grade to 18 feet below grade.

All power lines are located above ground.

A vapor survey (using the PID) of the manhole near the southwest corner of the site (the manhole cover used as and ASL benchmark) was performed. The PID measured 0 ppm. Therefore, vapors were not present.

The utilities, at their maximum depth, are 8 feet below grade. The groundwater level at the site ranges from 11 feet (MW-3) to 18 feet (MW-2 and MW-4). Since the utility trenches are located above the water table, the utility trenches will not act as a conduit to the subsurface.

Open trenches were not available to conduct a vapor survey of the utilities. A vapor survey was conducted in on accessible area - the manhole of the pump hours located on the southwest corner of the property. The vapor survey justrument read 0 ppm of total volatile organic compounds.

Laboratory analysis for soil samples from on-site boring did not exceed IDNR's regulatory action level. This has been evident from the soil samples collected form borings drilled near utilities: B-1, B-2, B-3, MW-1, MW-2, and MW-4. Based upon the analytical data, soil type, and groundwater levels, it is unlikely that the utilities are impaired or affected.

The following are recommended when conducting a confined space survey:

- 1) Check confued spaces using an explosurator and PID. Record names and addresses of building sundates/owners.
- Check for vapors sear basesments, sever drams and sear any foundation cracks.
- C. Groundwater Survey. Identifying active, inactive, abandoned and plugged groundwater wells within 1,000 feet of the patroleum contaminated arm. Groundwater professionals only used to report well information readily evaluable from public entities (i.e. comply leadth or mining departments, IDNR, Water Supply Section (515/242-4128), Geological Survey Survey States (315/235-1375) sec.) and water well owners. An onner survey will be necessary to identify all the wells in a 300 feet radius of the patroleum contaminated arm. include in the appendix:
- 1) Copen of available well logs.
- 2) Name and address of each well owner. Correlate with well attended
- 3) Description of the plugging method for those wells are maked according to chapter 567-39 IAC.

Well F as identified an Rampter Survey Map Well Status Active	FREEL FREEL		West.							
Active										<u>'</u>
Inactive Aboutoned Plagged Asserting to Chapter 19 Not securing Chapter 19	N	(1) (1)		0 11 11 11	13				() () () ()	0 0 0 0 0
	Eging pro	1 11	for each		Well, M	10 [] [] [] [] [] [] [] [] [] [] [] [] []	That Appl [] [] [] [] []	0000	U 0 0	0 0
Static Water Level Elevation	T _{NA}	INA	I NA	1	T	Ţ	·		Γ	
Well Depth Elevation Depth Elevation Well Discount	NA NA	M	Lee.	1	T	1	1		1	
Casing Material Wall Log Provided NO YES	Steet OX	10	H)	В	13	1 13	1	13		1

Label the partitive and information in Appendix VIII portuning to the above with the handing " Groundwiste Well Intvoy."

D. Grunnévater Barrier Survey. Identify the location of barriers, (i.e. foundations, structures, parkin; lots, reside, netwell, etc.) fast could have an impact on the movement of the communication. Exploit the significance of the barriers by salating their pressures to the hydrogenological conditions at the nite. Likel the narrative in Appendix VIII partning to the shove information with the heading "Grunnfesters Barrier Survey."

IX. Certification of Site Health & Salety

REQUIRED

Statement of Verification of On-Site Health & Safety Procedures

The On-Site Health & Safety Procedures and Conditions conform with applicable OSHA requirements.

YES MO[]

1 -288

Three deep wells exist on-site: former plant water supply well, plant water supply well, and a former test well. Please refer to the "Overall Site Plan Map" for further details.

- Former plant water supply well Well logs are not available for this water supply well. This well used to supply water to the plant for its operations. However, it is currently not in service. This well is not plugged. The depth of this well is approximately 240 feet below grade. This well is located approximately 20 feet west of the testing facility tenn-to-
- Water supply well Well logs are not available for this water supply well. This well currently supplies water to the plant for all purposes: industrial and drinking. The depth of this well is approximately 240 feet below grade. This well is located approximately 5-feet west from the testing facility lean-to."
- Test well A 6-inch diameter, 200-foot deep test well was drilled on the facility property in 1979. The well was used to test Markey Pump Company's jet pumps. This well is located in the testing facility.
- The owner of all three wells is the Marley Pump Company located at 500 East 59th Street, Davenport, lowa.

There are no off-site wells within 1,000 feet of the UST.

Groundwater Barriers Survey

One of Marley Pump Company's parking lots for this facility is located approximately 40-feet west of the testing facility lean-to. Additional parking lots are located on the other side of the facility, approximately 650-feet east of the testing facility lean-to and approximately 180-feet south of the testing facility lean-to. The building foundation for this facility is approximately 3.5 feet below grade. This does not pose a barrier for groundwater because groundwater measured in the four groundwater monitoring wells, ranges from approximately 11 feet to 18 feet below grade. East 59th street is located south and approximately 130-feet south of the testing facility lean-to.

1

289

	200 VIIII TOTA TOTA TOTALINE TION				
Provide a tabulance if malyucal data for each soil boring or monstering well. List each sampling event chrosologically with the ideas date furst. If mrings were sampled on a particular day at different elevations, list the smalls for the samples closest to the round surface furs. Record all elevations as feet Above See Level (ASL).					
Poring/Well Number	1 May 1 un 1 Mar 2 lun 3 lun 3 lun 4 Ba 18 2 18-3 1				
Data Sampled	Hinns Hars 19/ my Harry Harry Hours 1 Whart Plans 19/ 6/23/19/Age				
Elevanous (R. ASL.) Ground Surface Soil Sample Static Oroundwase (45 - 4 mile 1/3.)	715 65 715 64 715 54 115 23 715 13 715 14 715 64 715 64 715 64 715 64 715 64 715 64 715 64 715 64 715 64 715 65 71				
Total Petroloum Hymnerbons (ppm) Entractable Hydrocatons (ppm)	larest work no love No No lase No loss				

Groundwater Analytical Data Information See. Citicolard delacare Provide a tabulative of groundwater excepting analytical data. List the exampling events starting with the first well in the well identification scheme. If the well was sampled more than once, list each result chemologically. Record all obvestions as feet Above See Lovel (AL). Boring/Well Number Date Elevation (R ASL) Crossel Elevation 71511 751 Top of Screen Static Water Love I an I an I an I an I an I Beamso (ppb) Etryformanne (ppb) I and and relieved and ı 1,05 1016 1250 1 NO 1 NO 1 Tahema (ppb) Xylase (ppb) 1 40 NO NO

>> Atlack Amendix X 'Laboratory Data Sheat Provide expice of all inhustory data about.

XI. Free Product

CONFINE YOUR ANSWER TO THE SPACE PROVIDED

- A. It free product present at the site ? YES [] NO [7]

 S. If year, indicate its data the "Free Product Removal Report" was notenized:

 C. Discouse the mans and evaluate the affectiveness of the free product removal eye
- D. Provide monthly seports to DNR on the attached DNR forms \$42-1424 and \$42-1425.

APPENDIX X - LABORATORY DATA SHEETS

SOIL ANEAYTICAL DATA - METCALF & EDDY, INC.

MW-4, 7.51 - 101	TPP - 8.8 J UG/KG
MW-1, 17.5' - #C	TPH = 6.8 J UG/KG
MW-2, 5' - 7,5'	THE ND
MW-3, 7.5" - 10"	TP4 - 16.6 UG/KG
MW-3, 15'-17.5'	TPH - ND
MW-3, 15'-17.5'	TPH - ND

SAMPLES COLLECTED ON MESSE

SOIL AMALYTICAL DATA - METCALF & EDBY, INC.

B-1, 4'-6'.	B-1, 4'-6',	B-1, 4'-6',	B-I, 4'-6',	B-1, 4'-6',
Benzene - ND	Toluene - ND	Ethylhenzene - ND	Xylenes - ND	TPH - 13.8 ug/kg
B-2, 6' - 8'.	B-2, 6' - 9',	B-2, 6' - 8'.	B-2, 6' - 2',	B-2, 6' -8',
Bensene - ND	Tolucue - NE	Ethythensene - ND	Xylenes - ND	37H - ND
B-3, 4'-6'.	8-3, 6' - 8',	B-3, 6' - 8',	B-3, 6' - B',	B-2, 6' -8',
Benzene - ND	Toluene - 9.6J	Ethylbenseue - ND	Xylenes - ND	TPH - 13 wg/kg
MW-4, 9.5' - 12.5'	MW-4, 9.5' - 11.5'	MW-4, 4.5' - 11.5'	MW-4, 9.5' - 11.5'	MW-1, 9.5' - 11.5'
Beasene - ND	Toluene - ND	Ethythennene - ND	Xylenes - ND	TPN - ND

ISAMPLES COLLECTED ON SCHORER 19, 1893)

SOIL ANALYTICAL DATA - SENECA ENVIRONMENTAL SERVICES

<0.5 UG/G	BIF-I, ETHYLBENZEENE	BH-I, TOLUENE -	BH-1. XYLENES -	BII-1, TPH - <10
	- <0.5 UG/G	< 9.5 UG/G	<0.5 UG/G	UG/G
SAMPLES COLLECT	D ON SALKON			

MW-1, BENZENE -	MW-1, ETHYLBENZENE -	NW-1, TOLUENE -	MW-I, XYLENES -	MW-1, TPH - 16.5
ND 1-G-1	ND LG/L	ND UG/E	ND UG/L	UG/L
MW-2, BENZENE -	MW-2, ETHYLBENZENE -	MW-2, TOLUENE -	MW-2, XYLENES -	MW-2, TPH - 2540
248 UG/L	322 UG/L	42.8 UG/L	43.4 UG/L	UG/L
MW-3, BENZENE -	MW-3, ETHYLBENZENE -	MW-3, TOLCENE -	MW-3, XYLENES -	MW-3, TPH - ND
NB UG/L	ND UG4.	12.2 UG/L	2.8 J UG/L	UG/L
MW-3D, BENZENE -	MW-3, ETHYLBENZENE -	MW-3D, TOLUENE -	MW-3D, XYLENES	MW-3, TPH - ND
NO UGAL	NO UGAL	25.1 UG/L	- ND UGA.	UG/L
RINSATE. BENZENE - ND UG/L	RINSATE, ETHYLBENZE - ND UGA.	RINSATE, TOLUENE - ND UG/L	RINSATE, XYLENES - 0.5 J UG/L	RINSATE, TPH - ND UG/L

SAMPLES COLLECTED ON 19/192

WATER ANALYTICAL DATA - METCALE & EDDY, INC.

MW-U, BENZENE -	MW-F, ETHYLBENZENE -	MW-1, TOLUENE -	MW-I, XYLENES -	MW-I, TIHI - ND
ND UGA.	ND UG/L	1.61 UG/L	0.6) UG/L	UC/L
MW-2, BENZENE -	MW-2, ETTYLBENZENE -	MW-2, TOLUENE -	MW-2, XYLENES -	MW 2, 1791 - 995
	3.63 UG/L	21.8 UG/L	175 UG/L	UG/L
MW-3, BENZENE -	MW-3. ETHYLRENZENE -	MW-3, TOLUENE -	MW-3, XYLENES -	MW-3, TPH - 177
7.9 UG/L	2.9 UG/L	25.6 UG/L	6.1 UG/L	UG/L
MOV-4, BENZENE -	MW-4, ETHYLBENZE -	MW-4, FOLUENE -	MW-4, XYLENES -	MW-4. TPH - ND
ND UG/L	ND UG/L	ND UG/1.	ND UG/L	UC/L
MW-4D, BENZENE -	MW-40, ETHYLBENZE -	MW-4D, TOLUENE -	MW-4D, XYLENES	MW-4D, TPH -
ND UGAL	ND VG/L	ND UG/L		ND

(SAMPLES COLLECTED ON OCTOBER 26, 1993)

WATER ANALYTICAL DATA - SENECA ENVIRONMENTAL SERVICES

BH-1, DENZENE -	BR-1, ETHYLBENZENE -	Bil-I, TOLUENE - 0.29	8H-1, XYLENES - 0.15	BIL-1, TPH - 3.7
8.61 MG/L	0.25 MG/L	MG/L	MG/L	MG/L

SENECA ENVIRONMENTAL SERVICES, INC.
SOIL AND GROUNDWATER LABORATORY ANALYTICAL DATA



NET Midwest, inc. Cedar Falts Division 104 Enterprise Orive Cedar Fells, IA 50613 Tel. (319) 277-2401 Fax: (319) 277-2425

ANALYTICAL REPORT

Ms. Heather Morton-Davis SENECA ENVIRONMENTAL SERV. 5113 Tremont Avenue Davenport, IA 52807

03/30/1992

Sample No.: 163005 Job Number: 92.2095

Sample Description:

2 9

SOTI.

S-7 BH-1 Marley Pump

Date Received: 03/19/1992 03/18/1992 Date Taken: Date Analyzed/Analyst Units Result Parameter. 03/27/1992 hlk Total Extractable Hydrocarbons <10. ug/4 VOLATILES - BTEX (NONAQUEOUS) 03/24/1992 mkk uq/q <0.5 Benzene 03/24/1992 mkk <0.5 ug/g Ethy 1benzene 03/24/1992 nkk <0.5 ug/9 Toluene 03/24/1992 nkk <0.5 uq/q Xylenes, Total 03/24/1992 mkk uq/q <10. Total Hydrocarbons

Sample introduction performed in reference to EPA Method 5030 (purge & trap). Analysis performed in reference to EPA Method 8015 for volatile organics using flame ionization detection. (Iowa Method OA-1, Revision 7/01/91).

Kethod Detection Limits: Benzene <0.5 ug/g: Toluene <0.5 ug/g; Xylenes, Total <0.5 ug/g; Total Hydrocarbons <10. ug/g; Ethyl Benzene <0.5 ug/g.

Hydrocarbons are extracted in accordance with EPA Analysis is performed Method 1550 (sonication extraction). Analysis is performed in reference to EPA Method 8100 using flame ionization detection. (Towa Method CA-2, Revision 7/01/91). Method Letection Limit <10. ug/g Extractable

> Bindert Project Manager





704 Enterprise Dr P.O. Box 625 Tal. (319) 277-2401 Fas. (318) 277-2428

ANALYTICAL REPORT

Ms. Heather Morton-Davis SEFECA ENVIRONMENTAL SERV. 03/30/1992

5113 Tremont Avenue Davenport, IA 52807

Sample No.: 163006 Job Number: 92.2095

Sample Description:

W-881 WATER Marley Pump

Date Received: 03/19/1992

	Date Taken:	03/18/1	1592	DECA MECATAGE: 03/13/		/ 13/ 1376
			Result	Units	Date Analyze	d/Analyst
	COLATILES - BTEX	(WATER)				
	Benzene		0.61	mg/L	03/20/1992	ake
	Ethylbenzene		0.25	mg/L	03/20/1992	ake
_	Toluene		0.29	mg/L	03/20/1992	ake
	Kylenes, Total		0.25	mg/L	03/20/1992	ake
	Total Hydrocarbo	ns	3.7	æg/L	03/20/1992	ake

Sample introduction performed in reference to EPA Method 5030 (purge and trap). Analysis performed in reference to EPA Nethod 8015 for volatile organics using flame ionization detection. (Iowa Method CA-1, Revision 7/01/91).

Method Detection Limits: Benzene <0.002 mg/L; Toluene <0.002 mg/L; Xylenes, Total <0.002 mg/L: Total Hydrocarbons <1.10 mg/L. Ethyl Benzene <0.002

Project Manager

METCALF & EDDY, INC SOIL AND GROUNDWATER LABORATORY ANALYTICAL DATA ROUND 1 - SEPTEMBER/OCTOBER 1992

1700 W. Albani . Broken Arrow, Alkiahima 74012 . 418-251-2858 . FAX: 918-251-2549

LINE TELL GENERALISM CONTRACTOR AND THE STREET March the School ATTHE DENNIS STORES

SEPORT: 11078.0171

DATE: 09-25-92

DET.

L1917 UNIT

RESULTS

3.1

JA/OC SURROGATE RECOVERY

The second of th

The state of the s SOUTHWEST LABORATORY OF OKLAHOMA, INC. 1700 W. Albans. + Birskin Arrow Oklahoma 74012 + 918/251-2888 + FAX: 918/251-2899

CARROLL OF THE WARREN 1 TEFRE FURZA, 2015E 1100 WEST difference and a second of the semistry of ag

SEPORT: 11078.62TT

DATE: 09-15-91

GET. CIMIT

UNIT

RESULTS

SOUTHWEST LABORATORY OF OKLAHOMA, INC. 1700 W. Album v. Brosen Artone, Oklahoma 74012 v. 918-251-2858 v. FAX: 918-251-2590

CLESTE MILITARE FERN HIERIC FLAZA. N. 171 1500 WEST

178314 LL 50143 AT NE SEMMES STORES

REPORT: 11078.0311

DATE: 09-25-92

· ··· ·· LIMIT

SE₹.

RESULTS

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DA/DC SURROGATE RECOVERY

The second of th

1700 W. Albans + Broken Arrow Oklahoma "4012 + 418-251-2858 + FAX: 918-251-2390

LIEWT: TO ALK & EDIN LIFERIE FLAZAL LIDTE DONE WES CONSTRUCTOR OF ACTION ATTN: DENNIS OTHER

REPORT: 11078.04TI

DATE: 39-25-92

The state of the s

DET.

TIMET

RESULTS

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10.0

GAZDE SURROGATE RECOVERY

· .

- TET - TEMP -

SOUTHWEST LABORATORY OF OKLAHOMA, INC. 1700 M. Albara + Brisken Arrow, Oklahima 74012 + 918-251-2858 + FAX: 918-251-2559

Calmita William A Spire THE THE THE ACT OF THE CASE WEST OF THE CONTROL OF

REPORT: 11078.05TI DATE: 09-25-92

DET. LIMIT

RESULTS

1251

DAZGC SURROGATE RECOVERY

3.

17(9) W. Albans + Broken Arrow. Oklahoma 74612 + 918-251-2888 + FAX: 918-251-2899

"LUENIE "E "ALF & SIDY

PARAMETER

I TIERCE FLHZAL BITE 500 WEST

1980A FEE ROLAS -1794 DEBNIE ETSHES

REPORT: 11078.0611

The state of the second of the second of the second of the second of the second of the second of the second of

DATE: 09-25-92

DE[→].

RESULTS

1115

GAZOC SURROGATE RECOVERY

A ARTHUR OF HOREITH

To Burning a new York by Agramma Aurora, on

DILUTION PACTOR: 1

1700; W. Albory . Sutte "C" . Broken Arron, Oklahoma, 74012 . 918-251-2858 . F4Y-918,751-2500

LANGRATORY QUALITY CONTROL SEQUENCE

: gwa46-6015 (MODIFIED) (IOWA METHOD)

SEQUENCE DATE : 09/22/92

IMSTRUMENT ID. : 6

LABORATORY BLANK

ARTS NO. : BLANK : 6092292\011F11D1 PILEMANE

NATRIX : Water SAMPLE ID. : BLANK SAMPLE AMOUNT : 5.0 ml AMALTEIS DATE : 09/22/92

AMALYSIS TIME : 09:28

AMOUNT FOUND QUANTITATION COMPOUNT (ug/L) LIMIT (vg/L)

10.0 MD 10.0 GREULIME

EURROGATE RECOVERY (4-BRONOFLUOROBENSEME) : 101 %

MATRIX SPIKE/MATRIX SPIKE DUPLICATE RESULTS

S819.04 S819.04MB SAMPLE COMC. MATRIX SPIKE PERCENT (ug/Kg) + COMC. (ug/Kg) + RECOVERY SPIKE COMC. COMPOUND (uq/Kq)

GRECLINE

300.0

16.6

475.1

92.5 %

5819.04ND MATRII SPIKE

PERCENT DUPLICATE CONC. (ug/Kg) * RECOVERY RECOVERY PERCENT DIFFERENCE

GABOLIME

487.2

94.1 %

(1.7) %

DILUTION FACTORS NOT APPLIED TO THESE CONCENTRATIONS

Services 10 MILITAL SAMPLE NORMAND 7.5-10

17th: W. Albans - Broken Acron. Oklahoma 74012 - 918-251-2888 + FAX: 918-251-2599

SELENTE PETCALP & grey

1964

L FIERCE PLAZA, PIOTE ISOU WEST

.14866. LL 60193

FINE DENISE STORY

REPORT: 11239.01BX

9AIE: 10-21-92

LAMBLE MATRIES WATER

FW0.0 W 81209.01

METH ID REFERENCE: SWC48-6020

COUNTRY FACTOR: 1

05:00 TAMPLED: .0-01-92

PARE SUBMITTED: 10-52-92

THUSETTE MARKET FUME COMPANY

APPLICATE THE

PARAMETER	GUANT. I, JEIT	unit	RESILTS
GAS CHEUMATOGEAFHY			
HENZENE	1.0	ug/L	N€D
TOLUENE ETHICLES LIBERTY	1.0	ug/L	NB
ETHYLBENZENE EYLENE I	0	ug/L	ND
C. CELINE D	1.0	arg Z L	NiD

GA SEQUENCE NO: 38240 GA/GC SURROBATE RECOVERIES

4-PAGMOR(CORDENZENS (65-135%) 102%

E * ESTIMATED VALUE AREVE LINEAR RANGE;

NE " NOT DETECTED ABOVE DUANTITATION LIMIT

P = ANALYTE DETECTED IN BLANK AS WELL AS SAMPLE

A = ESTIMATED VALUE: CONCENTRATION FELDS LIMIT OF QUANTITATION

SURROGATE RECOVERY SUTSIDE OF DC LIMITS DN OPIGINAL RUN AND REPUN.

SW = TEST METHODS FOR EVALLATING SOLID WASTE, EPA PUBLICATION MSW846, THIRD EDITION, NOVEMBER 1986

1700 W. Albany . Broken Arrow, Oklahoma 74012 . 918-251-2858 . FAX: 918-251-2590

UBLINTS OFFI NEW ROELD. IN POSSES FLAZAL ADUTE 1988 WEST

PASSA, ALL SSIND ATTRE DENISE STORY REPORT: 11239.6111

DATE: 10-21-92

JAMPIS MAIKIKI WATER
JACO W JOSSONI
METHOD PERFERNEL: 6-5
DELOTION FACTOR: 1
DATE SAMPLED: 10-01-VZ
DATE SAMPLED: 10-01-VZ
DATE JAMPISED: 10-01-VZ
PPISED: MAKESES: NO JOMEANY
PPISED: MAKESES: NO JOMEANY

SAME, E IDE MEG

BUANT.

LIMIT

UNIT

RESULTS

ISTAL - PREAPLE TETEGLE TH - DROCARBONS

BASUL INE

PARAMETER

10...

ugZL

18.5

DA/OC SURROBATE RECOVERY

4-EROMOFLUGROBENZENE

95.

* 1 DURKOBATE RECOVERY OUTSIDE OF DC LIMITS ON GRISINAL RON AND RERUN.

ND = NET LETECTED ASSVE DUANTITATION LIMIT

COMPOUND FOUND IN BLANK AS WELL AS SAMPLE

SESTIMATED VALUE: CONCENTRATION RELOW LIMIT OF BUGANTITATION

. UNARLE IS BUANTITATE DUE TO MATRIX INTERFERENCE

1700 W. Mount + Broken Arrow, Oklahoma, 74012 + 918-251-2858 + FAX: 918-251-2599

CLERT'S TECHN 3 EDIT - CTREE FLAZAL (LIFE 150) WEST - CTROWN TENTE - CORP. - STOWN TENTE - CORP.

PEPGRT: 11239.028X

DATE: 10-21-92

SAMPLE MAIPLIN, LATPE SAME MODITION NO. METHOR SEESEMENTS BURGAY FOLGO SELLITON FACTORS OF TO CASE SOMMETHERS OF THE CASE SOMMETHERS OF THE CASE SOMMETHERS OF THE CASE CONTROL TO THE CASE CO

PARAMETER	QUANT. LIMIT	UNIT	RESULTS
GAS [HROMATOGRAFHS			
BENZENE	50.0	« g ≠L	748
TOLUENI. ETHYLPENZENE	:0.0	ag/L	42.0
XILENES	50.0 50.0	sg≠L .ig≠i,	322 83.s

GA SEQUENCE NO: 38241 CA/SC SURRODATE RECOVERIES

4-PROMOFULCEPOPENZENE - 65-105%) 104%

E = ESTIMATED VALUE (ABOVE LINEAR RANGE)

NE - NOT LETERIED ABOVE QUANTITATION LIMIT

H . A ANALY 'S DETELTED IN BLANK AS WELL AS SAMPLE

F ESTIMATED VALUE: CONCENTRATION RELOW LIMIT OF QUANTITATION

SIMPOGATE PECOVERY OUTSIDE OF OC LIMITS ON ORIGINAL RUN AND RERUN.
SM = TEST METHODS FOR EVALUATING SOLID WASTE, EPA FUBLICATION MEMBER. THIRD
SDITION. NOVEMBER 1966

1781% Albam - Broken Areim, Oxlahoma 74012 - 978 251-2858 - FAX: 918-251-2599

I HANTE MET OUT A FEET

I FRESEE FEAZA, FILTE INCO WEET

-Aci4. ... 60145 4118: NEWLINE STORY REPORT: 11239.0271

DATE: 10-21-92

SAMPLE MATRIDE WATER

SALL 9 11229.00

METHOD PEEFFENCE: TAHL

DIADOTON FACTOR: 10

DATE RAMPLED: 10 01-42 DATE SUBMITTED: 10-0-42

DATE ANGLICED: 13-1-42 FRISEDT: MARLEY FUMA COMPANY

SAMPLE ID: FW-,

OLIANT.

PARAMETER LIMIT

UNIT RESULTS

YOTAL & LEGINALS RETROLEUM HIDROCARPONS

4490LD5

1.00.6

35/1

2540.0

RAZRO SURROBATE RECOVERY

4-98-980F CUORGRENZENE

97%

. . SURESSATE RECOVERY OUTSIDE UP OF LIMITS ON ORIGINAL RUN AND RERUN.

ND - NOT SETECTED ABOVE BUANTITATION LIMIT

COMPOUND FOUND IN BLANK AS WELL AS SAMPLE

- + STIMATED VALUE: ISNOENTRATION RELOW LIMIT OF QUANTITATION

- ONABLE 'D GOANTITATE DUE 'D MATRIX INTERPERENCE

1700-W Albam . Broken Arters (Miahama 74012 . 918-251-2858 . FAX: 918-251-2599

The way to be taken by the beginning !

CORNEL METTALE A ESSA TERUS ALAGE. INTO SOMO WEST THAN ALAGE. HOSEN PONT OFNIGE COURT

MEFORT: 11239.03BX

DATE: 10-21-92

HATELS MATERIAL WATER March # 11174 ... METHUS REFERENCE: : : ##46--021 The Thin Follows LATE -AMPLES TARE RUBMITTED: 11 41-4. LATE ANALYZEDE - 10-38-91 THORETTE MANLE STIME DIMEANS

CAMPLE 124 MEST

FARAMETER BAS CHROTAL JEALH	PUANT, LIMIT	UNIT	RESULTS
HENZENE	1.0	agzt	HD
TOLUENE	1.0	agzt	22.2
ETHYLDENIY-E	1.0	ugzt	ND
YY, EMES	1.0	agzt	2.8 J

OA SEQUENCE NO: 33242 GA/CC SURROGATE RECOVERIES

4-EROP(Fill'OFORENZENE 165-135%)

E - EB'IRA'FD JALUE (ABOVE LINEAR RANGE)

ND MET DEFECTED ABOVE QUANTITATION LIMIT E . AMAL TE BETECTED IN BLANK AS MELL AS SAMPLE

: - ESTIMATED VALUE: CONCENTRATION BELUE LIMIT OF QUANTITATION

* - SURREGEATE PECOVERY GUISIDE OF DC LIMITS ON BRIGINAL RUN AND RERUN.

SW = TEST METHODS FOR EVALUATING SOLID WASTE, EPA PUBLICATION MSMEAS, THIRD EDITION, NOVERBER 1986

1700 W. Albam. + Broken Arrow. Oklahama 74012 + 418-251-2858 + FAX: 918-251-2599

BUT NOTE OF TOACH IS EDDE 1 FIERCE FUAZA, BIGTE 1100 WEST CASCA, ILL. 50147 ATTN: CENTSE STORY

REPORT: 11239.03TI

DATE: 10-21-92

HATEL HATEL WATER a⊌ct # 51209.00 METHOD PEFERENCE: JA-1 BILLTION FACTOR: : DATE SAMPLED: 10-01-97 DATE ANALYZED: . . . PROJECTS MARLEY FUME TOMERNY SAMPLE ID: MW-1

PARAMETER

3

PUANT. LIMIT

RESULTS

TOTAL FUELEABLE FETROLEUM HEDROCARRONS

GASOLINE

10.0

ug/L

ND

NETE: THE ELECTION PATTERN OF THIS NAMELE IS NOT CONSISTANT WITH GASOLINE

PAZIC SURROGATE RECOVERY

4- EROMOFLUGATIBENZENE

95.

IS SURPREATE RECOVERY (ITSIDE OF OC VIMITS ON GRIGINAL FUN AND RERUN.

ND - NOT TETECTED ABOVE DUANTITATION LIPIT

P - COMPCONE FOUND IN HUANK AS WELL AS SAMPLE

* ESTIMATED VALUE: CONCENTRATION BELOW LIFT OF GUANTITATION

* UMABLE TO GUANTITATE DUE TO MATRIX INTERFERENCE

1700 W. Albans . Broken Arrow. Okluhoma 74012 . 918-251-2858 . FAX: 918-251-2509

unificata (METITLE NEITH

PREFEE PLAZA, STOTE 1500 MEST

1745cA. 15c. 60140 ATTN: PENISE SHORE

SEPORT: 11239.04BX

DATE: 10-01-92

ราบา โดยกระบาน ครั้งเลี้ยง

HAME, & MATE INT WATER

3W2U # 11239,54

ME HOT HEFERENCE: SM646-3000 DILUTION FACTORS

PATE HAMPLED:

14-11-92 DATE SUBMITTER: (D-01-92

TATE ANALIZED: :0-08 92 PROCEST: MARLEY FOME DMEANS

AMPL: 10: MW-15

PARAMETER	QUANT.	UNIT	RESULTS
GAS CHROMATOSKSFILL		-	
BENZENE	5.0	ug rü	ND
TOLUCHE ETHNI BENZEN.	5.0	ug/L	25.1
EYLENER	1.0	a g /L a g /L	ND ND

OA SEQUENCE NO. 38242 QA/QC SURROGATE RECOVERIES

4-ERGMOFL CORDERNZENE 185-105%) 123%

E - 4 ESTIMATED VALUE LABBVE LINEAR RANGE)

ND - NDS IFFECTED AROVE DUANTITATION LIMIT E & ANGLYTE DETECTED IN BLANK AS WELL AS SAMPLE

J = ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION

* A SURROBATE RECOVERY OUTSIDE OF BC LIMITS ON ORIGINAL RUN AND RERUN.

SW = "EST METHODS FOR EVALUATING SOLID WASTE, EPA PUBLICATION WSW848, THIRD EDITION. HOVEMBER 1986

7 9 35 Alliam + Sonary Stone (Magranay Tate) + VIN 251 2458 + FAX 918.251.2599

Earlie of the Authorities

I FIEFER FUAZA, IIISTE 1500 WEST

174504. REL. 50147

CITAL DENICE STORY

FEFORT: 11239 0411

DATE: 10-21-92

AMPLE MATRIX: WATER 1 R. C. W. 112254164

METHOD REFERENCE: CA-1 IILLTIBN + ALTOR: 1

PATE SAMPLED: 10-01-97

0.415 E3BHITTED: 0.0012-92 1016 0MALY20D: 10-5-W1 SHOTE TE MARLEY HIME COMEAN

SAME FOR MW-UD

QUANT.

PARAMETER LIMIT UNIT RESULTS

TOTAL FURTEABLE PETROLEUM HIDECCARBONS

GASON INC

10.4

11Q72

ΝĐ

MOTE: THE ELICION PATTERN OF THIS SAMPLE IS NOT CONSISTANT WITH GASOLINE

QA/QC SURROGATE RECOVERY

4-FACMOFLUGA JBENZENE

1061

* - SUFFERATE AECOMERY DETRICE OF GC LIMITS ON ORIGINAL RUN AND RERUN.

TIME - NOT DETECTED ABOVE QUANTITATION LIMIT

S TOMPTOND FOUND IN BLANK AS WELL AS SAMPLE

- # ESTIMATED VALUE: CONCENTRATION BELOW LIBIT OF QUANTITATION

- WARRE TO QUANTITATE DUE TO MATRIX INTERFERENCE

1708 N. Adham + Remain Action (1974) from 74012 - 918-251-2888 + FAX 918-251-2899

GLIGHTE METIALS SHITS

FIREFOR FIRZH. INTELLINGS WEST

ITABLA, DELL BOIRT ATTN: DENICE BIORY

REPORT: 11237.05BX

DATE: 10-21-92

HAMPLE MATERIAL WATER

-wall # 31279.05

METHUD REFERENCES [JWH46-9610

District FACTOR: 1

1416 AMPLED:

DATE SUBMITTED: .D- (-4)

PATE GHALTZEDT CHU6-90 -- GECTT MARKET THE TOMPAN

HAMP E DE MINISTE

	QUANT.		
PARAMETER	LIMIT	UNIT	RESULTS
GAS CHROMATUGEAPHY			
HENZEIÆ	:.0	ug. L	ND
i OLU£+3F	1.0	ug/L	ND
ETHYL BENJENE	1.5	u q /L	NØ
YYLENES	3.26	unch	0.5

BA SEQUENCE NO: 38240 MA/DC SURROGATE RECOVERIES

4-640MOFLIJUKOBENZENE (65-135%)

20%

E = ESTIMATED VALUE FABOVE LINEAR RANGE)

ND = NOT DETECTED ARBVE SUANTITATION LIMIT

R . ANALYTE DETECTED IN BLANK AS WELL AS SAMPLE

J = ESTIMATED VALUE: TONCENTRATION RELOW LIMIT OF QUANTITATION

* = SURADBATE RECOVERY DUTSIDE OF OC LIMITS ON ORIGINAL RUN AND RERUN.

SW . TEST METHODS FOR EVALUATING SOLID WASTE, EPA PUBLICATION #SW845, THIRD EDITION, NOVEMBER 1986

1706 W. Albans . Broken Art in, Oktoborna 74012 . 918-251-2858 . FAX: 918-251-2899

PRINTED TO MET ALF LIBBO I HIERTE HEAZA. HILTE 1706 WEST 1144(A. Jan. -114) ATTN: DEWISE STORY

REFORT: :1229.05T1

BATE: 10-21-92

HARRIE MATRIEL WATER 34LC # 81239.0° ME"HAD REPERENCE: JA-1 PILLTION FACTOR: 1 IA E JAMFLED: 10-01-40 DATE BORMITTED:)------ DATE AMALYZET: 15 - 6 45 HADDEST: MARLEY - UMF COMPANY SAMPLE IL: FINSA-F

PARAMETER

DUANT . LIMIT

UNIT

RESULTS

TOTAL TUESTAN E PETADLEUM H-PADEARBONS

GASOL THE

10.0

1/2/1

ΝĐ

9A/9C SURROGATE RECOVERY

4-5-ROMOF LUDROBENZENE

88%

- . A SURROGATE RECOVERY DUTSIDE OF DC LIMITS ON ORIGINAL RUN AND RERUN. NE : NET SETECIED AROVE GUANTITATION LIMIT
- F COMPOUND FOUND IN PLANT AS WELL AS SAMPLE
- # ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION
- = UNARLE TO QUANTITATE DUE TO MATRIX INTERFERENCE

METCALF & EDDY, INC SOIL AND GROUNDWATER LABORATORY ANALYTICAL DATA ROUND 2 - OCTOBER 1993



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-51-5

OF OKLAHOMA, INC.

October 27, 1993

Desire Story METCALF AND EDDIE 1 Pierce Piese Suite 1600-W Stasca, IL, 60163

MEG ID: 16022.01 - 14021.09

Project ID: Marley Pump Company

Dear Ms. Story:

Reclosed planes find the analytical results for your samples reveived in our imboratory on October 21, 1992, for the above captioned project.

If, is your review, you should have any questions or require additional information, places call.

discernly,

Deryl Aletate Project Officer

MA/IND

tecloseros

1700 Wast Albant . Becker Asson, OK 74312-1421 . (918) 261-2656 . FAX (918) 251-2566



Southwest Laboratory of Cklahome.

ine. 1700 W. Albany

Broken Arrow.

OK 74012-1425

Office: 918-251-2858 FAX: 918-251-2599

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FROM:	DARYL	ALSTA	5	
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1700 West Albany . Broken Arrow, Oktahoma 74012 . Office (918) 231-2858 . Fuz (918) 251-2599

METCALF AND EDDIE

1 PIERCE PLAZA, STE 1400-W

ITABCA, IL, 60143

ATTM: DEMISE STORY

REPORT: 16022.01BX

DATE: 10-27-93

SAMPLE MATRIX: SOIL

SWLO # 16022.01

DATE SAMPLED:

DATE SUBMITTED: 10-21-93 10-25-93

DATE AMALYEED: DILUTION FACTOR: 1.0

METEOD REFERENCE: SW846-8020

10-19-93

PROJECT: MARLEY PUMP CO.

SAMPLE ID: B-1 4-6

PARAMETER	QUANT. LIMIT	TET 2 **	200/7/74
CAS CEROMATOGRAPHY			
BERZEVE	1.0	ug/Rg	MD
elharbeazhae Lorgeaz	1.0	ug/Rg ug/Rg	CIN CIN
XYLEMES	1.0	uq/Kg	MD

QA SEQUENCE NO: 3P102593 OA/OC SURBUGARE ERCOVERIES

4-BROMOFLUOROBEWRENE (65-135%)

544

MU - MOT DETECTED ABOVE QUARTITATION LIMIT

B - ANALYTE DETECTED IN BLANK AS WELL AS SAMPLE

J - ESTIMATED VALUE: CONCENTRATION BRIOW LINET OF QUANTITATION

* " SURROGATE RECOVERY OUTSIDE OF QC LIMITS ON ORIGINAL RUN AND RERUS.

SW - TEST METHODS FOR EVALUATING SOLID WASTE, EPA PUBLICATION #8W846, THIRD EDITION, NOVEMBER 1986



1700 West Albuny . Broken Arrow, Okishoma 74012 . Office (918) 251-2850 . Fax (918) 252-2599

CLIENT: METCALF AND EDDIE

1 PIERCE FLAIA, STE 1400-W

TYASCA, IL, 60143 ATTN: DENISE STORY REPORT: 16022.011

DATE: 10-27-93

SAMPLE MATRIX: SOIL SWLO 5 16022.01 METSOD REPERENCE: 0A-1

DATE SUBMITTED: 10-21-93
DATE AMALYSED: 10-22-93

PROJECT: MARLEY FUNP CO. SAMPLE ID: 8-1 4-6

DET.

LIMIT

mit.

LESUISS

TOTAL PURCEABLE PETROLEUM HYDROCARROWS

CASOLINE

PARAMETER.

10.0

ug/Kg

13.8

OL/OC SERECGASE PRODUCT

4-BROMOFILUOROBENIZENE

1091

ND - NOT DETECTED ABOVE QUANTITATION LINIT

- COMPOUND FOUND IN BLANK AS WELL AS SAMPLE

J - ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION

" UNABLE TO QUANT TATE DUE TO MATRIE INTERPERENCE



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SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany * Broken Arrow, Okiahoma 74012 * Office (918) 251-2858 * Pax (918) 251-2909

METCALF AND EDDIE

1 PIERCE PLAZA, STE 1400-W

ITASCA, 11, 60143

ATTH: DENISE STORY

REPORT: 15022.02BX

DATE: 10-27-93

SAMPLE MATRIX: SOIL

SWLO # 16022.02

DATE SAMPLED: DATE SUBMITTED: 10-21-93

DATE AMALYXED: 10-25-93 DILUTION FACTOR: 1.0

10-15-93

METROD REFERENCE: SW846-0020

PROJECT: MARLEY PUMP CO.

SAMPLE ID: B-2 6-0

OUAST.

GAN CHROMATOGRAPHY			
elderke Tolurne Elderke	1.0 1.0 1.0	ug/Rg ug/Rg ug/Rg	RLD RLD MED
XYLENES	1.0	ug/Kg	NUD

OA \$8000MCE NO: 38103993 ON/CC STREEGGATE ESCOVERYER

4-BROMOFLUOROBENIENE (65-135%)

MD - NOT DETECTED ABOVE GUARFITATION LINIT

B - AMALYTE DETECTED IN BLANK AS WELL AS SAMPLE

J ~ ESTIMATED VALUE: CONCENTRATION BELOW LINIT OF QUARTITATION

- SURROGATE RECOVERY OUTSIDE OF QC LIMITS ON ORIGINAL RUN AND REMUN.

SW - TIST WETHOUS FOR EVALUATING SOLID WASTE, SPA PUBLICATION #SW846, THIRD EDITION, NOVEMBER 1986



SW LABORATORIES

1700 West Albany * Broken Arrow, Oklahoma 74012 * Office (918) 251-2658 * Pag (918) 251-2799

CLIENT: METCALF AND EDDIE REPORT: 16022,021

1 PIERCE PLAIA, STE 1460-W

ITABCA, IL, 60143 ATTN: DENISE STORY

DATE: 10~27-93

SAMPLE MATRIX: SOIL SWLO # 16022.02

METHOD REFERENCE: OA-1 DATE SUBMITTED: 10-21-93

DATE AMALYSED: 10-22-93 PROJECT: HARLEY FUMP CO.

SAMPLE ID: B-2 6-8

DET.

LIMIT

BREUT/PE 1217

TOTAL PURGNABLE PETROLIUM HYDROCARBOMS

GASOLIWE

PARAMETER

10.0

uq/Kg

XD

DA/OC MINDOGATE ENCOPERE

4-BROMOFLUOROBENSENS

434

- NOT DETECTED ABOVE QUARTITATION LIMIT

- COMPOUND FOUND IN BLANK AS WELL AS SAMPLE

- ESTINATED VALUE: CONCENTRATION BELOW LIMIT OF QUARTITATION

. UNABLE TO QUARTITATE DUE TO MATRIX INTERPERENCE



1700 West Albany . Broken Arrow, Oklahoms 74912 . Office (918) 251-2658 . Fax (918) 251-2599

KETCALF AND EDDIE CLIENT:

1 PIERCE PLAZA, STE 1400-W

ITASCA, IL, 60143

ATTH: DENISE STORY

REPORT: 16022.04BX

DATE: 10-27-93

SAMPLE MATRIX: SOIL

SWLO # 16022.04

DATE SAMPLED: 10-19-93 DATE SUBMITTED: 10-21-93

DATE AMALYZED: 10-25-93

DILUTION FACTOR: 1.0

METHOD REPERRECE: SW846-8020 PROJECT: MARLEY PUMP CO.

SAMPLE ID: B-3 6-8

PARAMETER	QUART. LINIT		22511/25
GAS CHECHATOGRAPHY			
Benerne Tolurhe Ethylbenzene Xylenes	1.0 1.0 1.0	ug/Kg ug/Kg ug/Kg ug/Kg	nd O.6 J Nd ND

OA SEQUENCE NO: 38102593 OB /OC SUPROGRAM RECOVERIES

4-BROMOFLUOROSENZENZ (65-135%)

ND - NOT DETECTED ABOVE QUANTITATION LIMIT

B - AMALYTE DETECTED IN BLANK AS WELL AS SAMPLE

- ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUARTITATION

" SURROGATE RECOVERY OUTSIDE OF QC LIMITS ON ORIGINAL RIM AND RERUN.

SW - TEST NETHODS FOR EVALUATING SOLID WASTE, EPA PUBLICATION #SWS46, TRIND EDITION, HOVEMBER 1986



1700 West Albany * Broken Arrow, Oklahoms 74012 * Office (918) 251-2856 * Fex (910) 251-2559

METCALF AND EDDIE

1 PIERCE PLAZA, STE 1400-W

1TASCA, IL, 601+3

ATTM: DENISE STORY

REPORT: 16022.041

DATE: 10-27-93

SAMPLE MATRIX: SOIL

SWLC # 16022.04

MRTHOD REFERENCE: QA-1

DATE SUBMITTED: 10-21-93 DATE AMALYZED: 10-22-93

PROJECT: MARLEY PUMP CO. SAMPLE ID: B-3 6-0

DET.

LIMIT TIME RESULTS

TOTAL PURGEABLE PETROLEUM NYDROCARROWS

GLECTIES

PARAMETER

10.0

ug/Kg

13.0

OA/OC SUBBOGATE RECOVERY

4-BROMOFLUOROBEREEEE

ND - NOT DETECTED ABOVE QUARTITATION LINIT

- COMPOUND FOUND IN BLANK AS WELL AS SAMPLE

- ESTIMATED VALUE: CONCENTRATION SELOW LINIT OF QUANTITATION

- UNABLE TO QUARTITATE DUE TO MATRIE INFERFERENCE



1700 West Albany * Broken Arrow, Okiahozna 74012 * Office (918) 251-2858 * Pax (918) 251-2599

CLIENT: METCALF AND EDDIE

REPORT: 16022.038%

i PIERCE PLARA, STE 1400-W

ITASCA, IL, 60143 ATTN: DENISE STORY DATE: 16-27-93

SAMPLE MATRIX: SOIL

SWLO # 16022.03

DATE SAMPLED: 10-19-93

DATE SUBNITTED: 10-21-93

DATE AMALYZED:

10-25-93

DILUTION PACTOR: 1.0

METHOD REFERENCE: SW846-8020

PROJECT: MARLEY PUMP CO.

SAMPLE ID: MW-4 9.5-11.5

	PARAMETER	QUART.	DELT	20517.79
	GAS CHROMATOGRAPHY			
•	Benzene Toluene Etnylbenzene Xylenes	1.0 1.0 1.0	ug/Kg ug/Kg ug/Kg ug/Kg	NED NED NED NED

QA SEQUENCE NO: 38102593 GA/OC EMERGORATE RECOVERIES

4-BROMOFILEOROBESTERE (65-135%)

761

- ND NOT DETECTED ABOVE QUARTITATION LIMIT
- B AMALYTE GETECTED IN BLANK AS WELL AS SAMPLE
- J ESTIMATED VALUE: CONCENTRATION BRIOW LIMIT OF QUANTITATION
- * SURROGATE RECOVERY OUTSIDE OF QC LIMITS ON CRIGINAL RUW AND RERUM.
- SW TEST NETSONS FOR EVALUATING SOLID WASTE, EPA PUBLICATION #SW846, THIRD EDITION, POVEMBER 1986



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1700 West Albuny . Broken Arrow, Oktaborns 74012 . Office (918) 251-2858 . Pax (918) 251-2599

CLIENT: METCALF AND EDDIE REPORT: 16022.031

1 PIERCE PLASA, STE 1400-W

ITASCA, IL, 6G143 ATTN: DENISE STORY DATE: 10-27-93

SAMPLE MATRIX: SOIL SWLO / 16022.03

METHOD REFERENCE: OA-1

DATE SUBMITTED: 10-21-93 DATE AMALYSED: 10-22-93 PROJECT: MARLEY PUMP CO. SAMPLE ID: MW-4 9.5-11.5

> DET. LIMIT:

PARAMETER

WIT

RESILTS

TOTAL PURCEABLE PETROLEUM HYDROCARBONS

GASOLINE

10.0

ug/Kg

MD

CA/OC SUBBORASE PRODUKST

4-BROMOFLUOROBENSENE

74%

ND - NOT DETECTED ABOVE QUANTITATION LIMIT

- COMPOUND FOUND IN BLANK AS WELL AS SAMPLE

- ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION

- UNABLE TO QUANTITATE DUE TO MATRIX INTERPERENCE



1700 West Albury 4 Broken Arrow, Oktahoma 74012 - Office (918) 251-2856 - Pax (918) 251-2999

METCALF AND EDDIE CLIENT:

1 PIERCE PLAIA, STE 1400-W

1TASCA, IL, 60143

ATTW: DENTSE STORY

REPORT: 16022.05BX

DATE: 10-27-93

SAMPLE MATRIX: WATER

SWLO # 15022.05

10-20-93 DATE SAMPLED:

DATE SUBMITTED: 10-21-93 10-26-93

DATE AMALYZED: DILUTION FACTOR: 1.0

METHOD REFERENCE: 5W845-8020

PROJECT: MABLEY PUMP CO.

SAMPLE ID: NW-1

PARAMETER	QUANT. LIMIT	<u> </u>	
GAS CEROMATOGRAPHY			
REMIERE TOLUENE ETHYLBENIERE IVLENES	1.0 1.0 1.0	uq/L ug/L ug/L ug/L	MD .€ J MD .6 J

QA SECURNCE NO: 38102693 OB/OC BURBOGREY BECOMERIES

4~BROKOFLDOROBEWARKE (65~135%) 107%

ED - NOT DETECTED ABOVE QUANTITATION LIMIT

B - ARALYTE DETECTED IN BLANK AS WELL AS SAMPLE

J - ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION

* - SURBOGATE RECOVERY OUTSIDE OF QC LIMITS ON ORIGINAL RUN AND RERUN.

RW - TEST METHODS FOR EVALUATING SOLID WASTE, EPA PUBLICATION #SW846, TRIED EDITION, NOVEMBER 1986



-326

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METCALF AND EDDIE

1 PIERCE PLAZA, STE 1400-W

ITASCA, IL, 60143

REPORT: 16022.05I DATE: 10-27-93

ATTN: DENISE STORY

SAMPLE MATRIX: WATER SWLD # 16022.05 METHOD REFERENCE: OA-1 DATE SUBMITTED: 10-21-93 DATE ANALYZED: 10-25-93 PROJECT: MARLEY PUMP CO. SAMPLE ID: MW-1

PARAMETER

DET. LIMIT

MIT

PRESTATE

TOTAL PURGEABLE PETROLEUM HYDROCARBONS

GASOLINE

10.0

ug/L

HD

OA/OC SHIROGATE RECOVERY

4-BROMOFLUOROBEHRENE

113%

HD - NOT DETECTED ABOVE QUARTITATION LIMIT

- COMPOUND POUND IN BLANK AS WELL AS SAMPLE

- ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION

- UNABLE TO QUARTITATE DUE TO MATRIX INTERPRESEE



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SW LABORATORIES

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CLIENT: METCALF AND EDDIE

1 PIERCE PLAZA, STE 1400-W

ITASCA, IL, 60143

ATIM: DENISE STORY

REPORT: 16022.068X

DATE: 10-27-93

SAMPLE MATRIX: WATER

SWLO # 16022.06

DATE SAMPLED:

DATE SUBMITTED: 10-21-93 DATE AMALYSED:

10-20-93 10-26-93

DILUTION FACTOR: 5.0

METEOD REFERENCE: SW846-8020

PROJECT: HARLEY PUMP CO.

SAMPLE ID: MW-2

	PARAMETER	QUART. LINIT	PERC	PERIDA
	GAS CHROMATOGRAPHY			
•	BENEENE TOLUENE ETHYLBENEENE XYLENES	5.0 5.0 5.0 5.0	nd\r nd\r nd\r nd\r	168 21.8 3.6 J 175

QA SECURNCE NO: 28102653 OR/OC SURBOGREE BECOVERIES

4-BROMOFLDOROBENZENE (65-135%)

1224

ND - NOT DETECTED ABOVE QUARTITATION LIMIT

B . AMALYTE DETECTED IN BLANK AR WELL AS SAMPLE

- ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION

- SURROGATE RECOVERY OUTSIDE OF QC LIMITS ON ORIGINAL NUM AND RERUM. SW - TEST KETHODS FOR EVALUATING SOLID WASTE, EPA PUBLICATION /SWB46, THIRD

EDITION, MOVEMBER 1986



-328

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1700 West Albany . Broken Arrow, Oklahosta 74012 . Office (918) 251-2858 . Yax (918) 251-2599

METCALF AND EDDIE CLIEBT:

1 PIERCE PLAZA, STE 1400-W

ITASCA, IL, 60143

ATTM: DEMISE STORY

REPORT: 16022.061

DATE: 10-27-93

SAMPLE MATRIX: WATER

SWLO # 16022.06

METHOD REFERENCE: OA-1

DATE SUBMITTED: 10-21-93

DATE AMALYZED: 10-25-93

PROJECT: MARLEY PUMP CO.

SAMPLE ID: MW-2

DET.

PARAMETER

LIMIT

WITT

RESILES

TOTAL PURGEABLE PETROLEIM SYDROCARBORS

GASOLINE

10.0

ug/L

995

OA/OC SUBBOGASE ERCOVERY

4-PROMOFLUOROBEMESTE

1975 **

- ** * SURROGATE RECOVERY OUTSIDE OF QC LIMITS ON ORIGINAL RUN AND RERUN
- NOT DETECTED ABOVE QUARTITATION LINIT
- COMPOUNT FOUND IN SLAWE AS WELL AS SAMPLE
 - ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION
- UNABLE TO QUARTITATE DUE TO NATRIE INTERPERENCE



1"UO West Albany . Broken Arrow Oklahoma 74012 . Office (9'18) 251-2858 . Psz (918) 251-2599

CLIENT: HETCALF AND EDDIE

1 PIERCE PLAZA, STE 1400-W

ITASCA, IL, 60143 ATTH: DEMISE STORY REPORT: 16022.07BX

DATE: 10-27-93

SAPPLE MATRIX: WATER

SWLO # 16022.07

DATE SAMPLED: 10-20-93 DATE SUBMITTED: 10-21-93

DATE AMALYZED: 10-26-93

DILUTION FACTOR: 1.0 METHOD REFERENCE: SW846-8020

PROJECT: MARLEY PUMP CO.

SAMPLE ID: MW-3

	PARAMETER	QUANT. Likiz		#28m.44
	GAS CEROMATOGRAPHY			
•	Benzene Ethylderiene Ethylderiene	1.0 1.0 1.0	nd\r nd\r nd\r nd\r	7.9 25.6 2.9 6.1

OR SECURNCE NO: 20102693 ON/OC STEROGRATE RECOVERIES

4-BROMOFLUOROBENIZENE (65-1354) 1214

ND - NOT DETECTED ALOVE QUANTITATION LINIT

- ANALYTE DETECTED IN BLANK AS WELL AS SAMPLE

- ESTIMATED VALUE: CONCENTRATION BELOW LINIT OF QUANTITATION

SURROGATE RECOVERY OUTSIDE OF QC LIMITS OF ORIGINAL RUE AND RERUE.

EN - TEST METHODS FOR EVALUATING SOLID WASTE, EPA PUBLICATION #84846, TEIRD EDITION, WOVENBER 1986



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CLIENT: METCALF AND EDDIE

1 PIERCE PLAZA, STE 1400-W

TTABCA, IL, 60143

ATTM: DENISE STORY

REPORT: 16022.071

DATE: 10-27-93

SAMPLE MATRIX: WATER

SWLO # 16022.07

METHOD REFERENCE: OA-1

DATE SUBMITTED: 10-21-93 DATE AMALYZED: 10-25-93

PROJECT: MARLEY PUMP CO.

SAMPLE ID: HW-3

DET.

PARAMETER

LIMIT

UNIT

RECULES

TOTAL PURGEABLE PETROLEUM HYDROCARROWS

GASOLINE

10.0

ug/L

177

ON FOR A REPORTED TO A STATE OF THE PROPERTY O

4-BROMOFLUOROBERZENE

894

MO - NOT DETECTED ABOVE QUANTITATION LIMIT

- COMPOUND FOUND IN BLANK AS WELL AS SAMPLE

- ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION

" UNABLE TO QUANTITATE DUE TO MATRIX INTERPERENCE



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CLIENT: METCALF AND EDDIE

1 PIERCE PLAZA, STE 1400-W

ITASCA, IL, 60143 ATTN: DENISE STORY REPORT: 16022.085%

DATE: 10-27-93

SAMPLE MATRIX: WATER

SWI.0 # 16022.08

DATE SAMPLED:

10-20-93 DATE SUBMITTED: 10-21-93

DATE ANALYZED:

10-25-93

DILUTION FACTOR: 1.0

METBOD REFERENCE: SW646-8020

PROJECT: MARLEY PUMP CO.

SAMPLE ID: NW-4

	PARAMETER	QUART.	UNIT	22811.98
	GAS CHROHATOGRAPHY			
•	BENZINE TOLUENE ETHYLBENZENE XYLEMES	1.0 1.0 1.0	ug/L ug/L ug/L ug/L	OM OK OM

OA SECURECE NO: 38102593 OA/OC SURBOGATE BECOVERIES

4-BROMOF/JUOROBEHZENE (65-135%)

86%

MD - NOT DETECTED ABOVE QUARTITATION LIMIT

B - ARALYTE DETECTED IN BLANK AS WELL AS SAMPLE

- ESTINATED VALUE: CONCENTRATION BELOW LIMIT OF QUARTITATION

* 2 SURROGATE RECOVERY OUTSIDE OF QC LIMITS ON ORIGINAL RUN AND RERUS.
SW - TEST METHODS FOR EVALUATING SOLID WASTE, EPA PUBLICATION #5W646, THIRD

EDITION, NOVEMBER 1986



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SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1°00: West Albeny . Broken Arrow. Oklahoma 74012 . Office (918) 251-2858 . Fax (918) 233-2599

CLIEFT: METCALF AND EDDIE

1 PIERCE PLAZA, STE 1400-W

ITASCA, IL, 60143 ATTH: DENISE STORY REPORT: 16022.081

DATE: 10-27-93

SAMPLE MATRIX: WATER

SWILO # 16022.08

METHOD REFERENCE: OA-1 DATE SUBMITTED: 10-21-93

DATE AMALYZED: 10-25-93 PROJECT: MARLEY PUMP CO.

SAMPLE ID: NW-4

DET.

RESULTS.

TOTAL PURGEABLE PETROLEUM HYDROCARBOWS

CASOLINE

PARAMELER

10.0

ug/L

INT?

KD

ON /OC BURROWATE RECOVERY

4-BROMOFLUOROBESENE

44.0

NO - NOT DETECTED ABOVE QUANTITATION LIMIT

B - COMPOUND FOUND IN BLANK AS WELL AS SAMPLE

J - ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUARTITATION

I - UNABLE TO QUANTITATE DUE TO MATRIX INTERFERENCE



1700 West Albany * Broken Arrow, Oklahoma 74012 * Office (918) 251-2858 * Fax (918) 251-2999

CLIZHT: METCALF AND EDDIE REPORT: 16022.09EK

1 PIERCE PLAZA, STE 1400-W

DATE: 10-27-93

ITASCA, IL, 60143 ATTN: DENISE STORY

SAMPLE MATRIX: WATER SWID # 16022.09 DATE SAMPLED:

10-20-93 DATE SUBMITTED: 10-21-93 10-25-93

DATE AMALYZED: DILUTION PACTOR:

METROD REPERENCE: SW846-8J20 PROJECT: MARLEY PUMP CC.

SAMPLE ID: NW-4D

PARAMETRA	QUART. LIMIT		REBULSE
GAS CHROMATOGRAPHY			
Berzeme Toluzme ETRYLBENZEVE XYLEMES	1.0 1.0 1.0	ug/L ug/L ug/L ug/L	ED DE DE DE DE DE DE

OA SHOWENCE NO: 38102593 OBJOC SURBOGETE RECOVERIES

4-SROMOFLUOROBEMEENE (65-135%)

691

ND = NOT DETECTED ABOVE QUANTITATION LINIT

B - ANALYTE DETECTED IN BLANK AS WELL AS SAMPLE

- ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION

- SURROGATE RECOVERY OUTSIDE OF QC LINITS ON ORIGINAL RUW AND RERUW.

SW - TEST METHODS FOR EVALUATING SOLID WASTE, BPA PUBLICATION /SW846, TRIND EDITION, MOVEMBER 1986



SW LABORATORIES

G West Albany + Broken Arrow Oklahorna 74012 + Office (918) 251-2856 + Pax (918) 251-2559

METCALF AND EDDIE

1 PIERCE PLAZA. STE 1400-W

ITASCA, IL, 60143

ATTH: DENISE STORY

RZPORT: 16022.091

DATE: 10-27-93

SAMPLE HATRIX: WATER

SWLO # 16022.09

METROD REFERENCE: OA-1

DATE SUBMITTED: 10-21-93 DATE AMALYIED: 10-25-93 PROJECT: MARLEY PUMP CO.

SAMPLE ID: NW-4D

DET.

PARAMETER

LIMIT

WIT

RESILES

TOTAL PURGEABLE PETROLEUM SYDBOCARBOWS

GASOLINE

10.0

ug/L

ж

OA/OC SURGOGATE RECOVERY

4-5ROMOFLUGROBESTERNE

89%

ND - NOT DETECTED ABOVE QUANTITATION LIMIT

- COMPOUND FOUND IN BLANK AS WELL AS SAMPLE

- ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION J

- UNABLE TO QUARTITATE DUE TO MATRIX INTERFERENCE

The potential source of contamonation is a NG gailion manufactured steel UST >> B. Allach Appendix "XII(B) - Off-Site Contamination Source Support Data" If the commissions source identified in XII(A) is an off-site source, justify your exactions with analytical data and maps showing the site under avestigation and potential off-site sources and groundwater flow direction.

XII. Contamination Source

A. Identify the source of contamination at the rate.

APPENDIX XII (B) - OFF-SITE CONTAMINATION SOURCE SUPPORT DATA

Net applicable. The source is on-site.

XIII. Site Risk Classification

A. HIGH RISK SITE CONDITIONS

The following describe high rms not encoderant. Conditions sumbered 7, 9, 13, and 14 include a means, based on specific specifications, for proposing a low rate cleanifications. Classic the appropriate box of decommentation has been provided to substantiate the autrence of specific not employees the visit return in a low rate cleanifications. A size at the first large of the following conditions extent and decommentation is not provided to outsifting a low rate cleanification. All responses means to putsified with included and sydrogenological date administrated during the men necessarily and the application of recognized requirements; periodical and sydrogenological principles. Give your justification for each network on appointing "SUM - 8th Rule Classification Justifications." Number the response to herecarded with the neudoine description (i.e., A1, A2, etc.).

CONDITION DESCRIPTION

CONDITION DESCRIPTION	
The Threshold Linet Value Time Weighted Average (TLV-TWA) for humans in compand structures exceeds or as likely in exceed 10 perse per million for more than 8 hours per day.	M MO [] YES, HIGH RISK
2) The concentration of combinable passes in insuctances, beaminents, cravel spannes, utility conducts, storin or constary severa, visits or any other confused sparse consists or in blinky to street 10% of the Lower Explorave Lagar (LEL).	() YES, HIGH REEK PENO
3) Surface waste quality creams mendants commend as inchrole 567-61.3(4553) of the lower Administrative Code are expended or are Platy to be unconded due to a hydrogeologic consection between the outline water and the contemporation 2008.	H NO HEGH RISK
Percisus constnants on stonding 100 mg/kg total organic hydrocarbons as in countet with a walsty trench consuming a PVC druiting water transmission late.	(1 YPS, HIGH RISK NO
5) The patrolouse to imminutes to whiley bunches encounds the corrective action bonds in 135.1(8) of the love Adminutestive Code.	[] YES, MIGH BUSK 4 NO
6) Petrolouis consumentos as present et macontrationes er concentratione era Minity to esper, con enues physical demogra to a utility nondati er a strumturs.	() YES, HIGH BUSK (4) NO
7) Soil with a total organic hydrocarbon livel granter than 100 mg/kg is located within 1,000 feet of an active well used as a public or previous weater source.	I YEE, RIGH RISK W NO
A site may be classified as low risk if a gramminuter professional can demonstrate the water source will not be improved by the soil consequences to the saterest that so MCL is accorded or in the absence of an MCL an Action Level is examinated. Existers that must be considered in evaluating the impact of the resonance and contemperatures include well dwitth, constitutioning.	Dominimation is pervided to support a LOW RISE CLASSIFICATION
radius of in fluence and use; arm hydrogenic qual characters such permunisticy; trans- stateway, and contemporate emcentrations and permunistic; character characteristics, and improve potential of the relating beliefage.	HO RESK
8) Sell with a total organic hydrocartion level granter than 200 mg/kg is located within the seasonal high groundwater level of a protected groundwater averce or groundwater serving a public or paymen water easies.	M NO M NO
P) The petrolects release occurred in an sen of fractional list actions or knott topography (i.e., impography formed on lineaums, gygzum, and other results by dissolution, characterized by sink-holes, covers and nederground drainings).	() YES, ISIGH REEK M NO
A gire guey be classified low sub if a groundware productional can demonstrate that the protected groundwater season us the term of the principleum release will not be imposted by the contemporation to the unteraction on MCL as Audion Lawri in accounted. Person that must be exceeded. So excluding the impost of the potentials	Documentation is provided to support a LOW RISE CLASSIFICATION
contamination include uses hydrogeneogical characteristics; expension discusses between the contaminated above and procedural promodenter associate; and percentility and teamminately; convolutely thickness and contamination associations; and the percentages, chemical characteristics and my profits patential of the valueand entertaines.	N NO
10) A public or private water supply is or at blindy to be contaminated to the entent that on MCL is exceeded; or at the element of an MCL, an Action Level is oscended.	YES, HIGH RISK
11) A protected grouphwater enters to communicated to the antent that an MCL is consolid; or in the absence of on MCL, on Action Level is entereded.	YES, HIGH RISK NO

12) The contemporal group/water plans is within 100 feet of pateral or man-made surroture [] YES, HIGH RISK or committees that could allow the vertical or horizontal magnitude of contaminants to a protected groundwater source that is used as a public or prayers were source. The contaminated groundware place is within 1,000 feet of at active public or private [] YES, HIGH RISK M NO WHAT BOAYDE. A was may be classified low rank of a groundwater professional can demonstrate that the Documentation is provided protected germulatories asserts well not be expected by the groundwater contemperature to the examp that we MCL is exceeded or in the should of an MCL as Action Level is extended. to respect a LOW RISK CLASSIFICATION. Factors that smart be considered as evaluating the samples of the respecting groundwister consumention sprints well depth, construction, radius of spfinnes and use, area hydro-DI YES, LOW RISK periopical characteration, and permarkility and transmissively continuousless accomtions and performers, chargeral characteristics and sugretion potential of the released 14) The material experiency groundware serving as a public or private water scarce, or] YES, HIGH RISK which is a protected groundwater source, from not with a total organic hydrocarton level greene than 100 mg/kg which has a hydronic conductivity greene than 10⁻⁶ maters per day. The separating material stack bures a hydrocky conductivity less than or again to 10⁻⁴ maters Documentation is provided per Pry. 2 Statement duckname of three autors and by free of substrates discontinuous between the continuous access and by groundwater for the same to be classified low-read. A new costs to continuous cases and be groundwater for the same to be classified low-read. A new costs to classified low-read if a groundwater professionate and suppose the costs. to support a LOW RISK CLASSIFICATION wat hydrogeological and risk minimum data that the supersting material will provint or retained the programme of communication to the groundwater to the extens that are MCL M YES, LOW RESK w in the electron of in MCL, we Aster Lovel will not be essential. A sufficient ourself membershape of the hydranian essentially that he made to receive historially the hydrogeneous of the especially material under the full was estated of the minutes says. Measurements shall be made at a minimum of two locations. The distants between edjected management broadens shall not around 100 fiest. The our race receive additional resourcement based on the bytengeningical complexity

ILLOW RISK SITE CONDITIONS

The following describe low risk one conditions. Check the house that describe the use conditions.

Conditions Description

C. NO ACTION REQUIRED SITE CONDITIONS

The following discrete no action sequent site conditions. Chirk the boson that describe the site conditions.

Combine Description

1) The soal total organic hydrocuston concentration is equal to or less than 100 mg/kg and the presentation contamination in equal or less than my MCL, or in the obsence of an MCL, in upon to or less than an Actions Level and high risk or low rath conditions do not exist and are not likely to coors.

I YES, NO ACTION

> > Attack Appendix "XIII - Site Risk Classification Justification"

* Mexicana Continuous Level as defaul in subule 567-41.5(4558) of the love Administrative Code

** Action Lavel as defined in \$67-L17. B(552, 455E) of the lowe Administrative Code

A. BIGH RISK SITE CONDITIONS

- Confined spaces or occupied spaces have not been impacted by the petroleum release as
 evidenced by the PID mapor survey (0 ppm) conducted in the manhole for the pump
 house located near the southwest corner of the property. Therefore, benzene in occupied
 structures/utilities will not likely exceed 10 ppm for an 8 hour day.
- A confined space survey was conducted and vapors were not present (see answer to question 1).
- 3. Surface water bodies such as takes, streams, and ponds are not located within 1,000 feet (304.8 meters) of the designated petroleum impacted area. At an average hydraulic conductivity of 2.61 m/year, it would take over 117 years to reach the creek located east of this site. Surface water body samples were not collected.
- Soil analytical data did not exceed 100 mg/kg. Therefore, no soil exceeding 100 mg/kg
 is in contact with a water transmission line. Furthermore, the water transmission line
 near the site are made of east iron and not PVC.
- No open utility trenches were available to conduct a vapor survey. A vapor survey was
 conducted in a manhole for the pump house located in the southwest corner of the site.
 The PID readings were equal to 0 ppm.
- 6. The petroleum contamination is not present in high concentrations to affect or cause any damage to utility lines or structures. Furthermore, the utility lines are not in contact with the groundwater (groundwater ranges in depth from 11 feet to 18 feet below grade). The deepest utility trench is 8 feet below grade.
- 7. Laboratory analytical data indicate that soils did not exceed 100 mg/kg for total organic hydrocarbous. All inhabitants of 59th Street, rely on the city of Daveaport as a water supply. Private or public wells are not located within 1,000 feet of the impacted area. Therefore, well information is not available as evidence.
- 8. Laboratory analytical data for soils did not exceed 100 mg/kg for total organic hydrocarbon. Therefore, the seasonal high groundwater level of a protected groundwater source or groundwater serving as a public or private water source, is not affected. The city of Davesport obtains its water from the Misrissippi River (the public water supply source).
- The petroleum release did not occur in fractured limestone nor karst topography. The
 site is not characterized by sinkholes, caves, and/or underground drainage. The site is
 characterized by clayey silt underloin by a gincial till. No discontinuities occur in the
 clayer silt.

For further information, see Section II, Current site conditions for general geology,

- 11. It is unlikely, given the hydraulic conductivities of the soil (10⁴ m/sec) that a protected water source would be impacted. The public water source for drinking water is the Mississippi River. The contaminated area is not greater that 19 25 feet below grade. Deeper water sources are protected by an aquitard, a glacial till, which lies 20 25 feet below grade and is continuous.
- 12. The contaminated groundwater plume is within 100 feet of natural or man-made structures or conduits. The utilities, at their maximum buried stepth are 8 feet below grade. The groundwater level at the site ranges from 11 feet (upgradient well MW-3) to 18 feet below grade (downgradient wells MW-2 and MW-4). Nost utilities are located near MW-2 and MW-4. Therefore, since the utilities are located significantly above the water table, the utility trenches will not transport contaminants to the subsurface and impact the protected groundwater source that is used for a public or private water supply (The Mississippi River is used as the public water supply). For further information, see answers to questions 10 and 11.

MARK

- 13. A public or private water source is not located within 1,000 feet of the groundwater plume. Data would be provided to document such a phenomenon if wells were located within 1,000 feet of the source.
- 14. The subsurface soil (clayey silt) did not exceed 100 mg/kg total organic hydrocarbons. The subsurface soil consists of a clayey silt (thickness of 20 feet to 25 feet) and is underlain by a glacial till. The glacial till depth ranges from 20 feet 25 feet below grady. The soil strata is consistent throughout the site as evidenced by on-site borings conducted on site. The thickness of the clayey silt is greater that 3 meters and free of discontinuities. Hydraulic conductivities for the clayey silt in the three on-site monitoring wells ranged from 7.88 x 10⁴ m/sec to 9.3 x 10⁴ m/sec. This conductivity is indicative of silt and leess (Freeze and Cherry). The groundwater at the site does not serve as a public source for drinking water.

Documented evidence indicates that glacial till has a hydraulic conductivity equal to approximately 10° m/sec to 10° m/sec (Freeze and Cherry). This layer acts as an aquitard (a less permeable stratigraphic sequence) and helps protect the deeper water sources from impact.

The substance which needs is to be addressed is gasoline. Gasoline consists of a wide variety of hydrocarbons. Benzene, ethylbenzene, toluene and xylene (BTEX) will be used as surrogate parameters for the wide variety of hydrocarbons found in gasoline.

Although biodegradable, gasoline may persist in the environment while adsorbed on soil particles, floating on groundwater as a separate phase liquid, or dissolved in the groundwater. Casoline constituents may migrate, however, the rate of migration is controlled by the geology of the impacted area.

Physico-hemical characteristics of gasoline and BETX compounds are presented below:

CHEMICAL	FLASH POINT (F)	FLAMMABLE LIMITS (%)	DENSITY (at 20°C)	SOLU- BILITY (% at 20°C)	VAPOR PRESSURE (main Hg)	HENRY'S LAW CONSTANT
gasoline	-36	1.3 - 7.4	0.73	NA	383	NA
benzenc	12	1.3 - 7.1	0.88	0.18	75	240
toluese	40	1.3 - 7.1	0.87	0.05	22	330
ethylberizene	59	1.0 - 6.7	0.87	0.02	7.1	350
kylene (a)! isomers)	81 - 90	1.0 to 7	0.86 to 0.88	immis- cible	9	not appli- cable

Due to the low permeability of the soils, the migration potential of these constituents is low.

LOW RISK SITE CONDITIONS

 Soil -- The soil analytical data indicated that the 100 mg/kg action level for total organic hydrocarbons has not been exceeded.

Grouedwater --

MCL: Benzene - 0,005 mg/l Ethylbenzene - 0,7 mg/l Toluene - 1 mg/l Xylene - 10 mg/l

IAC: Benzene - 0.005 mg/l Ethylbenzene - 0.7 mg/l Toluene - 2.42 mg/l Xylene - 12 mg/l

Groundwater analytical results for monitoring well MW-1 indicate that Both benzene and ethylbenzene constituents were below the laboratory detection limits. Both Toluene and Xylenes, 0.0061, were detected but below the laboratory detection limits. Therefore, MCL nor IAC action levels were exceeded.

Groundwater analytical results for MW-2 indicate the presence of BTEX constituents in the groundwater. Benzene, 0.168 ppm, exceeds both the MCL and the IAC action level. Toluene, 0.0218 ppm, does not exceed the MCL or the IAC action level. Ethylbenzene, 0.0036J ppm, does not exceed the MC3, or the IAC action level. Xylene, 0.175 ppm, does not exceed the MCL or the IAC action level.

Groundwater analytical results for MW-3 indicates the presence of BTEX constituents. Benzenc., 0.0079 ppm, exceeds both the MCL and the IAC action level. Ethylbenzene, 0.0039 ppm, did not exceed the IAC nor the MCL action levels. Toluene, 0.006J ppm, did not exceed the MCL or the IAC action level. Xylene, 0.006J, was detected, however it was below the laboratory detection limits.

Groundwater analytical results for MW-4, the southernmost well, were all non-detect. Therefore, the transition zone or the "0" line has been determined.

High risk conditions do not occur at this site. Please see answer to question 1 - 14, High Rick Classification, for further details of why high risk conditions do not occur at this facility.

 High risk conditions do not exist at this site. See answers to questions 1 -14 for further information of why high risk conditions do not occur at this facility.

C. NO ACTION REQUIRED SITE CONDITIONS

 Soil — The soil analytical data indicated that the 100 mg/kg action level for total organic hydrocarbons has not been exceeded. Therefore, no action is required for the soil.

Groundwater — Laboratory analytical results indicate that benzene, the only petroleum hydrocarbon constituent, has exceeded the IAC and MCL action level of 0.005 mg/l in both MW-3 (0.0079 mg/l) and MW-2 (0.168 mg/l). All other petroleum constituents are either below the laboratory detection limits or the IAC/MCL action levels (See Appendix X for tabulated analytical data).

Additionally, the site has been classified as a low risk site. Please refer to the answers given in questions 1 - 14, High Risk Classification, for further details.

XIV. Corrective Action Response

technology mission. Do not a has been account by IDNR.

The corrective action response involves the simulfication if the best available transmiss technology or best available management practices to address the continuantion at the sim. The committee action response must be committee that the site risk classification.

Econominated inter classified as high risk one be reclassified to low risk if the condition causing the classification is absted. For example, if the only reason a little was classified high risk is incount the soil around a PVC water line is contaminated, the site could be reclassified to low risk if the water line was replaced. For such sites identified as high risk, propose a corrective action response that wall recult to the reclassifier/note of the test to low risk.

Please proceed to part "A" if the site has been cleanation at high risk. Sites cleanation da low risk are subject to best management processes which will sochule constantaneous manatemes. Please proceed to part "B" if the site has been cleanation as no rest are not recurrent for processor or generated.

 Identify below the contamination phases and estimated phase volumed Vadose zone soil contamination present? 	nes at the site YES []	NO[]
If yes, approximate volume of contaminates soil present		Cubic Yards
Dissolved phase petroleum product present in the groundwater? If yes, approximate volume of contaminance groundwater present		MO []
Free phase petroleum product present! If yes, approximate volume of free phase product present	YES []	NO []
2. List at least two treatment technologies available to address the con	stamination s	t the site.
<u> </u>		
1.		
4		
>>3. Attach Appendix "XIV(A3) - Treatmen Technology Evals Provide an evaluation of each treatment technology lumin a XV(A3) organized as		
1) TREATMENT TECHNOLOGY, Mentaly the trustment arthrophogy.		
2) TREATMENT METHOD EFFECTIVENESS. Evaluate the transmiss method is		
to acceptable levels and estimate the length of time it will also to reduce the compo		-
	the treatment of	ystra. Coesider such factors as
to acceptable levels and estamate the length of time at well also to reduce the composition of the property of the composition of the property	the treatment of maintenance an the procueality	ystem Consider such factors as impalenting requirements, etc. of using the treatment suched.
to acceptable levels and estimate the length of time it will also to reduce the composition of the process of the process of the reliability of groundwater quality, biological growths, dungs compositive, weather, operational 4) SITE CHARACTERISTICS. Evaluate the factors that may have an impact on Composite such factors as the geology, between teaching commitments, groundwater quality.	the treatment of maintenance an the procueality	ystem Consider such factors as impalenting requirements, etc. of using the treatment suched.
to acceptable levels and estimate the length of time it will also to reduce the composition of the process of t	the treatment and the proctocality older, with locar DVANTAGE2.	yerro. Consider such factors as i serviceing requirements, etc. of teing the treatment method, on and ability to maintain and Evaluate the coveramental and set as for estiminat, Walternary

APPENDIX XIV (A3) - TREATMENT TECHNOLOGY EVALUATION

This is not classified as high risk. Therefore, this section has not been completed.

APPENDIX XIV (A4) - BEST AVAILABLE TECHNOLOGY

This is not classified as high risk. Therefore, this section has not been completed.

5. Report Submittal

Please "ried one copy of the completed SCR, and appendicts to the lowe Department of Natural Resources. Lies Coordinator, William Building. Due Moisse. LA 50319 and one copy of the completed SCR and appendicts to GAB Business Services, Inc. , ,703-3337, Des Moisse. LA 50322. Additional is formation or clarification may be requested.

relicuting approval of the SCR, IDNR will require the substance of a Corrective Action Design Report (CADR). The CADR will contain scienced information specific to the treatment system chosen to remediate the tate and a measurang proposal designed to determine the effectivement of the system.

Low Rick Site Corrective Action Recommendations

Identify below the contamination phases and estimated phase volutional Vadose zone soil contamination present? If yes, approximate volume of contaminated soil present.	YES[]	NO [] Cubic Yards
Dissolved phase petroleum product present in the groundwater? If yes, approximate volume of contaminated groundwater present		NO[] Gallons
Free phase petroleum product present? If yes, approximate volume of free phase product present	YES []	NO N Gallone

- >> Z. Attach Appendix "XIV(RZ) Best Management Practice"
 Provide a detailed bost management practice plan. At a nauroum, the plan must contain.
- 1) Description of losk detection activities that will be emplemented at the site.
- Schedule of activities and descriptors of any probabilist practices, and other management practices, or a combination thereof, which will be implemented to provent additional contaminates.
- Assurances the analytical and investigancy technical requirements discussed and referenced in this SCR will be followed.
 Vapor analytic results will be accepted provided that:
- a) It can be disconstrued that the media brong campled and sampling points are conductive to the detection of contamination movement and increases in concentration (i.e., the sampling radius must be determined).
 - b) Gas chromatography or similar method of analysis is said for enalysis of samples.
- c) Supplies for Inhoratory analysis must be obtained if the following acressing levels are exceeded
 - 0 1 reg/l. TPHC (near docard factitude) for soil gas (in sets, partial vacuum extraction)
 - 1 0 mg/l TPHC (near gasoline facilities) for soil gas (an arm, partial vacuum extraction)
 - 0.5 mg/l: TPHC for groundwater (bend space staryers)
 - 1.0 mg/kg TPHC (new deepel faculties) for sou (hand muce analysis)
 - 10.0 mg/kg TPHC (near garoline facilities) for soil (head space analysis)

> > 3. Attach Appendix "XIV(B3) - Monitoring Flon"

Provide a monitoring plan that will enture my regulficant increme in contamination commitmation or movement is detected. The number and locations of maintening sites must be concame with contamination planes definition, and permeabilities, hydraulic mediatrivities and groundware flow directions. Include see mone to above monitoring locations, and propriet frequency is recommended. Any propriet reduction in the recommended suspling creat be justified. Partors that care the case flowed in the justification include the migration potential of the relatesed submanos, potential impact on the environment and public health if migration of the color groundware contamination occurs, area hydrogenologic characteristics, soil perucability, transmissivity, and contamination concentrations and persuatance.

YEARS AFTER APPROVAL OF THE MONITORING PLAN SAMPLE IN

- 1) one through three
- 2) four through six 3) seven through su
- 6) twelve

- calendar quarters 2, 3 and 4. calendar quarters 2 and 4 calendar quarter 2
- colondar quarter 2

4. Report Submittal

Please send one copy of the completed SCR and appending to the Jove Department of Natural Recognition, List Coordinator, and assess building. Des Moines, IA 50319 and one copy of the completed SCR and appendions to GAB Business Services, Inc. POR 3337, Day Moines, IA 50322. Additional information or citrification may be requested.

Measuring results most be imbusted in the formst required by IDNR's Site Monitoring Report (SMR). A copy of the Site Monitoring Report will be provided ofter the SCR to approved.

B. Low Risk Site Correction Action

Using only the monitoring wells which exceeded the IAC/MCL action level, MW-2 and MW-3, the volume was calculated. A 25' x 25' (625 ft²) area around MW-2 and a 10' x 10' (100ft²) area was anticipated to be impacted around each well. A smaller radius of contamination was used around MW-3 because this is the first time benzene was detected above the action levels. The water column height of 4.99 feet (MW-2) and 7.22 feet (MW-3) was used to determine the impacted volume of water around each well by multiplying the water column height by the area and dividing by the conversion factor 7.48 gal/ft². Please refer to the following equation for the determination of contaminated groundwater volume.

(none, of benzene - mg L]*tvolume of contaminated groundwater - ft^2)*(7.48 gal/ ft^2)* 3.785 L-gal)*(8.2 1600ms)*(2.25 lbs.kg)*(densu) of gasoline(ft^2)0.73 lbs.))*7.48 gal/ ft^2 = volume of contaminated groundwater for a specific well

Volume of contaminated groundwater (MW-3) = 3.72 gallous Volume of contaminated groundwater (MW-2) = 341.93 gallons The total volume of contaminated groundwater equals 345.65 gallons.

XIV(B2) - BEST MANAGEMENT PRACTICE

 Leak detection: Leak detection activities will not be implemented for the 500-gallon UST abandoned in place. All liquid material was removed from this tank by Martey Pump Company and sand was put into its place. The tank was closed during August 1987 - November 1987.

The new UST system has several leak detection monitors:

- Vapor probes in vapor monitoring wells monitored by Red Jacket RLM 9000.
- Uquid refraction sensor in the interstitial space monitored by Red Jacket RLM 9000.
- Automatic tank gauging P/N 4001955 with Red Jacket RLM 99000.
- Cathodic protection internally and externally. Tests performed 2/93 and due in 2/96.
- Secondary containment sealed concrete pad and 4-inch concrete curbing.
- Marley Pump Company uses all the leak detection monitors in conjunction
 with regularly scheduled cathodic protection checks and/or tank tightness
 tests as a precautionary measure. Furthermore, four monitoring wells will
 be used to detect impact to the groundwater.
- 3. Any soil or groundwater sampling conducted by Marley Pump company and its consultant, will abide by a QA/QC document which follows or is more stringent than those required by the IDNR. Vapor analysis of confined spaces (the manhole located southwest of the facility or other openings accessible to conduct the vapor survey) will be conducted when on-site monitoring occurs.

XIV(B3) - MONITORING PLAN

As of the submittal of this report, the Marley Pump Company will re-sample MW-3 for petroleum constituents. During the first phase of groundwater sampling (October 1992) the beazene levels in MW-3 were non-detect. However, during the second phase of groundwater sampling, benzene was detected (0.0079 mg/l) above the IAC/MCL cleanup guidelines, 0.005 mg/l. Through this sampling round, Marley Pump company will justify whether this increase is an anomaly.

Monitoring Plan - Markey Pump Company's consultant will collect groundwater elevation data and groundwater samples from the four on-site monitoring wells. The elevation data will help determine the groundwater flow direction and if any directional changes occur due to seasonal changes in the groundwater elevation. These four well are located in such a way that they are consistent with the current groundwater flow direction. Data from these sampling points will help determine whether impact is occurring to the subsurface. This data combined with the calculated hydraulic conductivities will aid in the determination of migration potential. If increases/decreases to the contaminant level occur and/or changes in the groundwater flow direction occur, then recommendations for change to the monitoring plan will be made accordingly.

The Marley Pump Company will follow the iDNR's proposed monitoring schedule as suggested in the SCR. However, Marley Pump Company reserves the right to request a reduction in monitoring frequency or reduction in the number of monitoring wells sampled if Marley Pomp Company's request follows IDNR's justification requirement.

M&E proposes the following schedule to conduct groundwater monitoring.

Year	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1994	NR	X	х	X
1995	NR	x	X	x
1996	NR	X	X	X
1997	NR	<u>x</u>	}	X
1998	NR	X		X
1999	NR	X		х

NR - Not required by IDNR.

The results will be reviewed annually and modifications to the modiforing plan will be recommended. If necessary.



TERRY E. BRANSTAG. GOVERNOR

DEPARTMENT OF NATURAL RESOURCES

September 23, 1993

Mr. Timothy Verhagen Mariey Company 1900 Shawnee Mission Parkway Mission Woods, KS 68205

SUBJECT: Petroleum Contamination - Request for Time Extension -

Marley Pump Company, 1500 East 59th Street in Devenport, Iowa.

Tank Registration No. 7910056 - LUST No. 8LTS84

Dear Mr. Best:

We have received the September 13, 1993 letter from you requesting a delay in the activity schedule at the referenced site. The request is granted.

Accordingly, the department will extend the due date for the Site Cleanup Report (SCR) until October 28, 1993. Please be aware that we may not be able to grant additional extensions for your schedule.

If you have questions, or we may be of assistance, please contact me at 515/281-6704

Sincerely.

VERNE SCHRUNK

ENVIRONMENTAL SPECIALIST

UNDERGROUND STORAGE TANK SECTION

VKS/ji

cc: Field Office 6

GAB

Denise Story, Metcalf & Eddy, 1 Pierce Place, Suite 1500 W,

itaaca, il 60143-2641

9-19-93



TIMOTHY J VERMAGEN
VICE President
and
Associate General Counsel

September 13, 1993

VIA FACSIMILE TRANSMISSION AND FIRST CLASS MAIL

Verne K. Schrunk
Environmental Specialist - UST Section
State of Iowa - Dept. of Natural Resources
Wallace State Office Building
Des Moines, Iowa 50319

Re Site Cleanup Report - Marley Pump Company 1500 East 59th Street, Davenport, IA Tank Registration No. 7910056 - LUST No. 8LTS84

Dear Mr. Schrunk:

You may recall that in June 1993, you reviewed and commented on a draft Site Cleanup Report (SCR) on the above referenced Davenport UST site prepared by Metcalf & Eddy on behalf of Marley Pump Company (Marley). This is an old UST, abandoned in place 2 number of years ago, which may be the source of benzese contamination found while testing for a new UST installation at this location.

Because ninety days have passed since our receipt of your comments, Marley is obligated to provide you with a revised SCR which corrects the deficiencies cited in your review.

Please accept this letter as a request for an additional forty five (45) days to submit the revised SCR.

The reason for the delay in the preparation of a revised SCR is because Marley Pump Company and its parent. The Marley Company, has been sold to United Dominion Industries, inc. headquartered in Charlotte, North Carolina. This transaction, valued at \$340 million, closed approximately three weeks ago.

Bob Best, who has been handling this UST matter, was let go in September 1992 as part of the pre-sale reorganization of the company. Since that time, the remaining personnel

Verne K. Schrunk September 13, 1993 Page 2

at Marley have been deveting all of their time to the consummation of this major corporate transaction.

I am sorry for the delay, and I commit to the Department that Marley now will stay on this project until its completion.

As you know, the level of benzene found at this site is confined to a small area and does not pose any threat to human health or the environment give the site's geological characteristics.

Marley is committed to fully satisfy the requirements of lowa and the policies of the UST section and will hereafter move promptly in this regard.

Please respond to the undersigned at the address shown on this letterhead, with a copy to Denise Story, Metcalf & Eddy, 1 Pierce Place, Suite 1500 W., Itasca, IL 60143-2641 and to Dan Van Zuiden, Red Jacket Pumps, 500 East 59th St., Davenport, Iowa 52808.

I appreciate your patience and cooperation in this matter. If you have any questions, please feel free to call at any time.

Very truly yours,

Timothy J. Verbasen

cc: C. Nelson

D. Van Zuiden

D. Story



TERRY E BRANSTAD, SOVERNOR

DEPARTMENT OF NATURAL RESOURCES

CERTIFIED MAIL

June 1, 1999

Bob Best Marley Company 1990 Shawree Mission Farkway Mission Woods, KS 6620t CERTIFIED 13/8496/98

SUBJECT:

Site Cleanup Report Review - Marley Pump Company 1500 East 59th Street, Davemport, IA

Tank Registration No. 7910056 LUST No. 8LTS84

Dear Mr. Best:

The department has reviewed the Site Cleanup Report (SCR) for the referenced facility. DNR received the report Pebruary 16, 1993. The following comments provide the conclusions of our review and relate to both administrative/procedural and technical issues. We suggest discussing these items with your registered groundwater professional.

The SCR is unacceptable due to the following technical deficiencies. Correction of these deficiencies is required before a risk classification can be established:

SCR Section III - Soil Sampling Methods & Findings

- 1) The explanation provided concerning soil boring placement is a description, not a rationale as required by the SCR.
- We have reservations as to the adequacy of the statement that no scil contamination exists at this site. Not enough data points have been provided, thus requiring excessive interpolation and estimation. MM-1 was twenty feet from the abandoned tank; this distance is certainly adequate for evaluating groundwater. However, the stratigraphy at this facility (sits and sitty clays) would seem to warrant sampling within 5 feet of the abandoned tank around its perimeter and at some justifiable distance along the product line.

SCR Section IV - Groundwater Sampling Methods & Findings

- 3 A general rationale for placement of groundwater monitoring wells was not developed.
- 4 Clarification that groundwater levels were stabilized must be provided, otherwise the validity of the groundwater contour map is questionable.
- 5. The "triangular" arrangement of the groundwater monitoring wells is such that the internal angles of the "triangle" call in question whether the methodology applies. The three wells can almost be relegated to a straight line, which in turn calls into question the groundwater flow direction.
- b) The explanation regarding the accuracy of the method used to determine droundwater levels is not responsive to the question.
- 7) Your consultant acknowledges the extent of groundwater contamination is not adequately defined. Consequently, further investigative work must be done to adequately define the groundwater contaminant plume and its transition zone.

SCR Section VII - Hydraulic Conductivity

8 Hydraulic Conductivity values were not provided in the appropriate units. The raw data and calculation to obtain the hydraulic conductivity values should be provided in an Appendix, but not in Appendix 14. Often this information is included as a separate Appendix or with the Cross Sections.

ECR Section VII - Receptor Survey

- Item B of this section is not sufficiently discussed. If the registered groundwater professional believes these items are not pertinent, some such statement is required as well as a narrative discussion/reason/basis for that position in the appropriate Appendix. Documentation must be provided to verify stilling have or have not been impacted. This would include teation and depth of utilities relative to the vertical and horizontal extent of soil and groundwater contamination along with some type of "on the ground" investigation of the utilities and their trenches (soil vapor survey and or lab analyses of soil samples).
- 10. Maps presented for item B illustration need to be more carefully reproduced (be legible) with more care applied to tabling the maps for correspondence with the marrative.
- 11 A determination and investigation of confined spaces, if present, must be accomplished.

SCR Section X - Tabulation of Analytical Data

13] Data from all previous investigation (Seneca "site check") must be included in the appropriate tables. Also, transposition from the lab data sheets to the table should be accurate.

SCR Section XIII - Risk Classification

13. Each point of the 14 Risk Classification criteria must be "answered" through a narrative which provides the rationale/justification/reasoned scientific basis for the "yes" or "no" answer your groundwater professional believes appropriate. This has not been done. Until such is provided, the risk classification cannot be determined.

SCR Section XIV - Corrective Action Response

14 Name of the information required has been completed for either a high risk or low risk site. We acknowledge a classification rannot be made until an adequate evaluation for receptors (per the SCR methodology, and the extent of soil and groundwater contamination is made, thus allowing completion of this section of the SCR. DNR certainly agrees with the consultant's statement that proceeding to clean-up or monitoring without knowing the extent of soil and groundwater contamination is premature. Likewise, DNR cannot accept or approve an SCR until the appropriate items of the SCR are completed.

The SCR also contains administrative/procedural problems that do NOT require sofrection in this report. These items must be addressed by your require coundwater professional in all future reports (this SCR resubmittal). These items include:

SCR Section I - Site History

Information regarding previous owners, dates of ownership, and site activities is incomplete and missing. Include information such as: when the land was purchased; when the USTs were installed, removed, used, etc. An explanation why the information is not included must be made or such information must be included. That explanation should include the efforts made to obtain this information.

SCR Section II - Current Site Conditions

- The Thereal Description of Site Geology' subsection should also totain information relevant to the geomorphic/physiographic setting in addition to a site specific stratigraphic description.
- 1. In describing "existing OST systems" mention should be made that the "out-of-service" UST is 'abandoned-in-place' and filled with sand. Additionally, the narrative in Subsection D indicates additional USTs were/have been installed. These should be included in the table. If these systems are regulated, they must be registered with the DNR. Please contact Mary Kay Rogge at \$15-051-8679 regarding questions and procedures for registering USTs and compliance with appropriate regulations.
- 4. The topographic map contour interval was not included.
- The "Scaled Site Flan Map" was not of a scale required in the SCR. Information requested in the SCR was not included location of abandoned product lines, existing product tank and line locations, tank contents and sizes). The DNR may accept maps scaled differently than stated if such a request is approved by DNR prior to submission of the SCR please call to discuss such deviation. Also, after obtaining approval, the SCR must contain the justification for the change.
- F: The "Scaled Site Vicinity Map" provided was not at an appropriate scale. The "neighborhood" to the West, North, and Northwest was not portrayed.

SCR Section III - Soil Sampling Methods & Findings

- 7: For those investigations completed after March 1992, DNR is requiring the use of the DNR logging format (included in the SCR document, and the Unified Soil Classification System. Please refer to the SCR and include the necessary information.
- 8: Soil boring logs for all previous investigations must also be included in the SCR.
- 9 Water level information is also to be included for soil borings.
- 10) The statement regarding prevention of cross-contamination needs expansion to clarify procedures between each borehole installation and each sampling event (i.e., is decontamination done after each split-spoon is taken as well as between borings).
- 11) Calibration procedures are questionable and somewhat unclear. The narrative should be expanded. Isobutylene gas provides a numerical value other than zero.

SCR Section IV - Groundwater Sampling Methods & Findings

- 11. The monitoring well construction diagrams are not per the SCR document instructions (as with the soil boring logs).
- 1: Elaboration of "placed into the annular space of the hollow stem auger" is necessary regarding the method of installation of filter pack and seals. Placed how? By pouring from the bag, by dropping from a shovel, tremse pipe?
- 14. Groundwater & surface elevations are required to be Above Sea Level values unless previous approval not to comply with this designation is obtained from DNR.
- 15: Further elaboration/explanation regarding the benchmark used must be provided. Simply stating "a light pole" is not acceptable. Tying a point on the light pole to an established benchmark, telling DNR where the benchmark is, and illustrating the chosen benchmark on the topographic map is the acceptable/preferred method.
- 16. Each data point on the groundwater contour map must be labeled with the relevant ASD elevation value.

Within inlinety 1900 days from receipt of this letter, submit to the department a revised SCR than corrects the listed deficiencies. If you are unable to meer this schedule, please notify the department in writing with the reason for the delay and a firm date by which the department will receive the revised SCR.

In all correspondence regarding this project, please include the LUST NUMBER, which can be found in the SUBJECT portion of this letter. If you have questions regarding this matter or we may be of assistance, please contact Verne Schrunk at 515/281-6704.

Sincere.y,

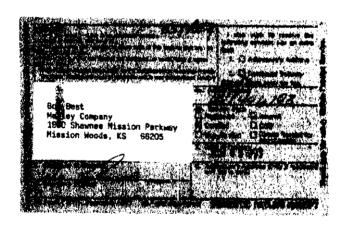
Using & chunc

VERNE K. SCHRUNK ENVIRONMENTAL SPECIALIST UNDERGROUND STORAGE TANK SECTION

VKS/vks/8S84SCR.REV

cc: Field Office 6

Metcalf & Eddy 10207 W. 67th Street Kansas City, MO 64152 attn: Denise Story



SCR SUMMARY SHEET (Sheet 1 of 2)

LUST		TANK REGISTRATION # 7916056
SITE N	AME 10 1935 Library 12 or my	SITE ADDRESS 500 E . SOU Street . Javenport, Jawa
REVIE	W DATE 4/22 22	REVIEWER and A Prochan
1,	PLUME DEFINITION	
	A. SOIL (Circle) Defined	Marginal Unacceptable N/A
	is additional work required? Yes	No
	Resson: 2 / / / / / / / / / / / / / / / / / /	eas not detected.
	6. GROUNDWATER Defined	Marginel Unacceptable N/A
	Is additional work required?	No
	Reason:	MW 2 there e no sampling point
u.	RECEPTOR SURVEY Adeq	uste Marginal Unacceptable N/A
	A. SURFACE WATER	
	B. CONDUIT SURVEY	<u> </u>
	C. WELL SURVEY	
	D. BARRIER SURVEY	
	is additional work required? Yes	No
	The state of the s	complete no comple of soil water and
88.	RISK JUSTIFICATION (Circle) Adeq	
	Reason.	1 · r
TIV.	RISK CLASSIFICATION (Circle)	HIGH LOW NO ACTION
	AGREE	DISAGREE
	Reason:	- Cartific Co
	1705-241.	

V.	SCR QUALITY	f (Cucie)	Good	Marg	mal	(Poor)
		epted?				
	Resson:	s o an iro	omplete	SCR GA	4 10000	Johnson
VI.	BAT (circle)	Adequate	Marginal	Inadequate	N/A	
	Reason:	Doses	plion is	Vin O, () B.,		
VII.		PLAN (Circle)	:	Marginal	Inadequate	N/A
	Reason:	not s	nar les	. J		

(Additional comments, if necessary)

CHECKLIST FOR THE SITE CLARKED REPORT (SCE)

The following guidance document is used to evaluate Site Cleanup Reports submitted to the department for review. Additional comments are written, if necessary, in the margins referencing the area of concern.

The following questions, devised from the SCR document, are to be answered based on the information presented in the SCR. Responses may fall into the following categories.

Y Yes Information provided meets presents the correct information.	the qualifications as indicated or
S a.	
l - Information is inadequate	
2 - Information is inaccurate	
3 - Information is missing	
N/λ - not applicable	
EACTLITY NAME CITY OF THE COURSE OF THE	- may, 500 E 59th St., Davengood, bus
Date SCR received:	
Date review initiated	completed: 166/18
Comment Letter date	
HAS THE SITE CLEARUP SHOUPT SAIRL BEEN COM	PLETED USING THE FORM PROPERTY OR A PURMAT

DESIGNATED BY THE DEPARTMENT ?

SITE CLEANUP REPORT CHECKLIST

Title Page

Are the following entries correctly completed:

LUST Humber (Y) UST Registration No. 3. Site Fame (Y) Site Address (complete) y) 5. Responsible Party - Name 2 Resp. Party - Address (complete) Submittal Date Site Risk Classification Name / Sign. of Groundwater Prof. 10, Name / Sign. of Resp. Party

Appendices Check-off Sheet

Appendices Check-Off Sheet be completed?
 Verify that all Appendices checked are in report.

X' N 1 2

I. Site History

Have the following been properly identified? (Verify thru DST database/written file)

- A. Date of patroleum release discovery (Y) N 1 2

 B. Date petroleum release reported to IDMR (Y) N 1 2
- C. Site Owner Chronology all information must be provided with no chronological gaps (the listing should include all periods of time when petro products were used or sold at the site)

 No per Mustry (NM) data/in to included
- Description of circumstances of the discovery of release (Y. N. 1
- E. Description of initial actions taken to abate $C = \frac{C}{C} + \frac{1}{C} \frac{d\theta}{d\theta}$

II. Current Site Conditions

Has sufficient information been provided on the following?

	so to regarding to garangers / physicing the
B .	Description of all existing UST system(s) at site Active, out of service and abandoned in place.
c	TO incline
	required by the IDNR - fale nearch required. There is hard by the fall he fall had been found to the
	the 'ortal force' ust into
	If required: Using a copy of the latest tank/line out good. tightness test, complete Table II-C
•	Appendix 1 - "Tank Line Tightness Testing Results"
	is a complete copy of tank/line tighthess test, H/A Y %
	In the method used approved by the DSEPA shid/or the IDNE for the conditions and table located at \fi/\(\rightarrow\) the site? Has third party certification gaen
	hacayded; A M
	Are the conclusions justified by data presented? TWA Y H 1 2 3
	Are explanations of testing anomalies provided? N/A Y N 1 2 3
	If consective actions were initiated or repairs NIA Y N 1 2 3
D:	Topographic Site Map
•	Appendix 2 - "II(E) Topographical Site Map" (cyclosy Trafficy)
	Is a legible topographical map, with contour interval and ichoo fined lass than or equal to 10 feet, provided showing the
	site and surrounding area?
K .	Scaled Site Plan
•	Appendix 3 "IIIR" Scaled Site Plan" the one plan shows operating US straight which rathing two mentioned
	is a scaled site plan provided showing the site and In Schmill B including area?
	Dues the diagram provided show the location of all existing and removed USTs, product lines, and dispensers, and portinent site features, such the bullings, wells saverways.
	her the Openday UNT System to techniques of

					**	•	
7.	Scaled Site Vicinity May	Report Comm	ا معارته معد الراج الأمام الراج الراج	.41-	10 - 693 693	11	
•	Are the names and addresses of owner property is or is likely to be affect movement of contamination provided?	ted by the	tie 1 +				
	provided must correspond to informat the "Scaled Site Vicinity Map")	ion on	, Y) 10	1	2	3
7	Appendix 4 - *II(F) - Scaled Site Vi	ininity Map*	nat dia a	100	ر ایل دغاور	150	
	Is a completed scaled site map (1"- provided showing general area featur of adjacent properties which are or	200 to 500 ft) res and location	ne d				,
	by contamination movement?		,		1	2	3
<i>Y</i>	Does the man provided show all pertifications of builded and sections of builded and sections of builded and sections of builded and sections of building and sections of the section of the sections of the sections of the sections of the sections of the sections of the s	ildings, roads,	necession.		1.51	2	3
ш.	Soil Sampling Methods & Findings		Ang Py and	gi en A i dikini	for job doc 17	1) Kr.	de e de movede
A.	Boring number and placement - Has a explanation been given to justify thand placement of woil borings.	he number	. 61	. 4 Kg K - N	1 (1)	2	3
7	Does the rationale for borehole pla for sufficient information to be co determine the vertical and horizont contamination and the transition so areas that are and are not contamin	llected to \\ \(\lambda\) extent of \\ \(\alpha\) between	The steps of a light complete and	y 2 19		2	3
7	In the retionale justified based on geologic, or hydrogeologic principle N. U. (N.C. Far. 700 Act.) UST - N.O. 31 Nr. Sic.		F	Y 3	· Os L	à	3
B.	Soil Boring Logs			,			, ,
×	Appendix 5 - "IIIB - DNR Form 542-1 Soil Boring Logs" Old soil being log-1 were not for IB a separate hoil boring log proviborehole placed?	ded for each	Decre part of	TO THE PORT OF THE		Hat Wind Honoles Honoles	174; 1 100
	Ale the boring logs completed with as required on DNR form 542-1392?	J DEFENSE N	h - ! - }		N; ,	:	•
a i	is at least one (1) water level ob- with time, date and water elevation boring log?			. (.)		•

Water level using were not individed to specify long

e.	Prevention of cross-contemination: Are the actions taken sufficient to prevent cross-contemination					
	between bosenies during installation and sampling			~		
,	procedures there is the procedure of the procedure was a second to be procedured to be proc	Y	ы	3	2	3
	·	•				
D.	Vepor Equipment: Has a list been provided itemising various vapor equipment used if any!, description of its use and an evaluation of the conclusions				•	
	drawn from the vapor results and calibration procedures?	X.	N	1	2	3
	Calibration chart - Are daily calibration					
ſ	measurements noted for each vapor instrument used.	æ,	N			
¥.	Soil sample collection: Has a description been provided of soil sample collection methods and					
	a reason for its use in obtaining representative samples.	(¥)	Ħ	ı	2	3
	At a minimum, were soil samples collected at 5 toot intervals of at points indicated by high vapor readings	(¥)	N	1	2	3
₽.	Soil Contamination Plume Map(s)					
•	Appendix (- *III/H) - Soil Contamination Plume Maps* 00	ار ارت	יוני	4 marin	واعتابت	ယ္ဆရ
.*	Do the soil contamination plume maps depict the full extent of vadose zone soils which exceed the					
	IDNR corrective action limit of 100 ppm total creationly dracatorse	Y	N) 1	2	3
	Are the maps adequately labelled with each boring					
	numbered and soil contamination concentration for each boring noted:	(y)	N	1	2	3
	Based on the location of soil borings and the boring					
	In in provided, are tre limits of contamination incentialies justified by scientific prunciples?	Y	(N) 1	2	3
	Have the foling 8 used to determine hydraulic					
	Here to the state of sed	- 9		1		,

megaliplace Does sloot to do of or sitic cont. Is tigeo! Moni Apper Diag Is t diag site to the form of the for	og mamber & placement: Is a standing given to jumtify the meant of groundwater monitoring where the rationale for monitoring where sufficient information stermine the vertical and homeometering the stratigrag on mone between areas that assiminated. The rationale justified based ogic, or hydrogeologic principles of the principles of the principles of the principles of the principles of the principles of the principles of the principles of the principles of the principles of the principles of the principles of the principles of the principles of the monitoring well construct icions information regarding ach well (See Section IV-C)?	number and ing wells? g well placeme to be collect risontal exten phy, and the t re and are not on engineerin iples. green Well Construct foot or do green etl construct installed at t foot or dagrees ion diagrees	ed tran- g,	× ×	N (N)	1	2 2	
place Does sllow sllow to de of costil conti Is ti geol Moni Appe Diag Is t diag site fof t suff of a st	the rationale for monitoring of or sufficient information between the vertical and how manufacture the vertical and how manufacture, site at rational and how manufacture that a saminated. The rationale justified based ogic, or hydrogeologic prince toring Well Construction Diameter and the saminated of the sami	g well placeme to be collect risontal exten phy, and the t re and are not on engineerin iples. Well Construct front we do gree ell construct installed at t	ed tran- g,	***	(P)	1	2	
Moni Moni Apper Diag Is ti diageoli Moni Apper Diag Are a st	w for sufficient information obtained the vertical and host contamination, site stratigual and host contamination. Site stratigual on some between steas that a saminated. The rationale justified based ogic, or hydrogeologic prince toring Well Construction Diameter of the second of	to be collect risontal exten phy, and the t re and are not on engineerin iples. grams Well Construct four we do are ell construct installed at t	ed tran- g,		(P)	1	2	
to de of constitution of const	ntermine the vertical and homotomication, site stratigral on mone between shear that an aminated. The rationale justified based ogic, or hydrogeologic prince toring Well Construction Diameter of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the monitoring well construct in the monitoring well and the moni	risontal extensive, and the tree and are not on engineering iples. Well Construct foot or do go to the document of the docume	g,		(P)	1	2	
Moni Apper Diag Is z diag site unen Do t suff of e Are	mainated. The rationale justified based ogic, or hydrogeologic principal pr	grame Well Construct foother do grame will construct installed at t	g, tion (), ()		(P)	1	2	
Moni Apper Diag Is t diag site Unco For e	toring Well Construction Dia ndix 7 - IV(B) - Monitoring ' rams'	grams Well Construct from the from ell constructi installed at t	cion (), C		(A)	1	2) Ir.	
Appending Diagonal Table Color	ndix 7 - IV(B) - Monitoring of the property of the property of the property of the property of the monitoring will construct the monitoring well construct intent information regarding	Well Construct from the pro- ell construction installed at the transportation ion diagrams p	on the		; N) lr.	
Diag Is t diag site (ner Do t suff of e Are	here a separate monitoring warm completed for each well and in the general area? The construction information regarding the monitoring well construct information regarding	for we do great the second sec	on the		N	, , '		
diag site (ner Do t suff of e Are	ram completed for each well and in the general area? """ "" "" "" "" "" "" "" "" "" "" "" ""	installed at t	he ,	(<u>x</u>)	N	,	2	
suff of e Are	idient information regarding				••		•	
of e			rovide					
Are a st	ach well (See Section IV.C)?		ion					
	acu wait (nee paction is c):			\ A j	D)	1	2	
	water level observations rec	orded that ver	cify in (fi	000	2005		× 1-	
stab	abilized level? Has the well	been allowed	نردان ا	and o	44.4	•,	r'	
	ilizz? 	والمستعملية كتبيين	وكار وينال	. Y	, N	1	2	
			الأعنى أأرا	· ^ // · •	' *	مريان ا	•	•
	he static water level indica ol " "?	ted with the		Y	(N)	1	2	
		· ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' '	,					
	he static water level within rval of the monitoring well?			1	N	X	-:	
						<u> </u>		
							N. Carl	٠
Are	ription of Permanent Munitor the following aspects of the rided in a clear and concise	well construc	مليدند etion	ارجوسطتور والم	77 T	7		t r
orov ∪(1)		coments brion	fitty for	ation			יין יין ריי	- 4
U(\$)	casing and screen material,	incl. diamete	er and leng	ith to a	wy = 1	per mere		-14
	screen slot size							
	·	to recept, and	come e e		1			
(5)	method used to install filt actions taken to prevent or	er pack and se	eals,		"			

		American Transfer) A (6)	· · · · ·	100	Eddard.	(green)
D.	Temporary Monitoring Wells: Has a description or explanation been provided describing the type and use of temporary casing and screens in the boreholes	/ ^	بيرون دهون	, pa euer,	no coide	respo	rise
	used as temporary wells?		¥	N	1	2	3
	Is an adequate explanation and justification provided on the procedures used to develop the well to ensure a representative groundwater sample?		¥	N	1	2	3
ř.	Has an adequate explanation and justification been provided for determining the adequacy of the groundwater sampling and well purging methods?		(A)	N	1	2	3
₹.	the following information? 3. Well/Boring number 2. Date measured	40.00	wate grif plevi	1061		હ્યું ક્ય હ્રાદ્રસ્ત્રી	rfare as
	3 Static Water Level (AGL) - nearest 0.01 ft 4. Water level correction for Free Product, if required 5 Ground Surface Elevation - nearest 0.1 ft		Y	ы	1	ø	③
•	describing the correction method?	-/ A	Y	N	1	2	. 3
1	for groundwater surface elevations been provided? [1.4]	hit ca hit can hit ma	. `			. Presidig	than 6
	Is the benchmark used tred in to a USGS or other geodetic datum?			1		2	3
G.	Groundwater Contour Map						,
•	Argendix 8 (IV(G) Groundwater Contour Map*	John B	الإسا	, da	10 TE		. +0
. ه 	less the Groundwater Contour Map provide intermation as to monitoring well locations, groundwater contour intervals.	Vic.	0	1011	र हो	المبعود	₹
	and groundwater flow direction (noted with an invested of the state of		¥	M	3)	2	3
	Results wells used to determine hydiaulic conductivity identified on the map?		Đ	N	1	2	3
	If incresoary, are separate groundwater contour maps provided to describe groundwater movement and the descriptor or different amountains.	l /a				2	

and flow darection in different aquifers?

۵.	mas a description and emplanation been provided on:				٠.	
· 1.	the methodology and device used to determine static groundwater levels - identify instrument used.	(ý)	н	1	2	3
₹ 2.	the accuracy of the method used to determine groundwater lavels. In decision of experiment of the accuracy winds had measurement	Y	n	1	3.	3
3.	anomalous groundwater flows and/or water levels. **/A	Y	N	1.	2	.3
4.	fluctuations in water levels, with special emphasis on those which may alter groundwater flow directions.	¥	Ħ	1	2	3
1.	Groundwater Contamination Plume Maps					
•	Appendix 9 - "IV(I) - Groundwater Contamination Plume Maps"					
	Arms wohe.					
X	Do the groundwater contamination plume map(s) depict the full extent of free phase product and dissolved phase contamination exceeding the department's groundwater corrective action limits and are the	. 4	Nox		,	maya)
\	Do the groundwater contamination plume map(s) depict the full extent of free phase product and dissolved phase contamination exceeding the department's groundwater corrective action limits and are the iso-concentrations of groundwater contaminants noted within the plume?	. 4 	N.	· · · · ·	2	3
7	Do the groundwater contamination plume map(s) depict the full extent of free phase product and dissolved phase contamination exceeding the department's groundwater corrective action limits and are the iso-concentrations of groundwater contaminants noted within the plume?	. 4 . 	N.	· · · · ·	2	3
7	Do the groundwater contamination plume map(s) depict the full extent of free phase product and dissolved phase contamination exceeding the department's groundwater corrective action limits and are the iso-concentrations of groundwater contaminants noted within the plume? If necessary, is a separate groundwater contaminant plume map provided for each contaminant which	. 4 	N N N N N N N N N N N N N N N N N N N	· · · · ·	2	3
7	Do the groundwater contamination plume map(s) depict the full extent of free phase product and dissolved phase contamination exceeding the department's groundwater corrective action limits and are the iso-concentrations of groundwater contaminants noted within the plume? If necessary, is a separate groundwater contaminant plume map provided for each contaminant which exceed's the IDNR's corrective action limits? Is each data point adequately labelled as to MW \$	4 (1) 10 (N) (2) Y X mod (1) Y	N N N N N N N N N N N N N N N N N N N	i 	2 2 2 2	3
7	Do the groundwater contamination plume map(s) depict the full extent of free phase product and dissolved phase contamination exceeding the department's groundwater corrective action limits and are the iso-concentrations of groundwater contaminants noted within the plume? If necessary, is a separate groundwater contaminant plume map provided for each contaminant, which exceed's the IDNR's corrective action limits? Is each data point adequately labelled as to MW # and contaminant concentration? If applicable, is a map provided which depicts the full extent of free product and depth of	(x)	N N	1 1	2 2 2 2	3

Has a statement been provided that indicates that the QC/QA procedures used are at least as stringent as those of the IDNR's LUST QC/QA plan.

Are the Hydrogeologic Cross-Sections or three- dimensional diagrams etratigraphically correct as interpreted from the soil boring logs? Do the cross-section diagrams provide detail of the following. It identification of types and characteristics of the geologic materials present? I identification of contact zones between different geological materials, noting areas of high permeability and/or fracture? I identification or boreholes, noting dipth of termination and rone of saturation? II identification or boreholes, noting dipth of termination and rone of saturation? II is in the interpreted from the soil and the interpretation of the peologic materials, noting dipth of termination and rone of saturation? II is a statement been made identifying which toring(s) and/or wells were used to determine the hydraulic conductivity Have the data and calculations used to determine hydraulic conductivity been provided? Has the method used to determine hydraulic in the instruction of the interpretation of the instruction of the interpretation of the interpretation of the interpretation of the interpretation of the interpretation of the instruction of the interpretation of th				1 -	cation	notific	set unified soil class	agrama* Fig. is not	iagrams.	•
following. 1. Identification of types and characteristics of the geologic materials present? 2. Identification of contact mones between different geological materials, noting areas of high permeability and/or fracture? 3. Identification or boreholes, noting dipth of termination and none of saturation? 3. In 1 2. Identific Conductivity Has une hydraulic conductivity been determined? 4. Has a statement been made identifying which toring(s) and/or wells were used to determine the hydraulic conductivity? 4. Have the data and calculations used to determine hydraulic conductivity been independed? 5. Has the method used to determine hydraulic for a confidence of the conductivity been identified. 6. If an equivalent method (other than the Bouwer-Rice method in saturated soils or the Guelph permeasmeter in unsaturated soils was used, was the accuracy and appropriateness evaluated? 6. Has an explanation been provided on why the location/ norter of data prints used for determining hydraulic	3	2	1	N	Đ		raphically correct as	mensional diagrams etratigrap	imensional	
Identification of contact zones between different geological materials, noting areas of high permeability and/or fracture? *** Location or boreholes, noting dipth of termination and rone of saturation? **** M. 1 2 **** Location or boreholes, noting dipth of termination and rone of saturation? **** M. 1 2 **** Mass an attement been made identifying which toring(s) and/or wells were used to determine the hydraulic conductivity? ***Have the data and calculations used to determine hydraulic conductivity? ***Have the data and calculations used to determine hydraulic conductivity been provided? ***Has the method used to determine hydraulic to a constant and advantage of the conductivity been identified. ***If an equivalent method (other than the Bouwer-Rice method in saturated soils or the Guelph permeasmeter in unsaturated soils o							as provide detail of the			
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<pre>//industryity is representative of the conductivity</pre>	-					ic	ovided on why the location for determining hydraulic	as an explanation heen provider of data prints used for	Has an exp	
at 15: site (V) N 1 2 2	3	2	1	N	(¥)		· · · · · · · · · · · · · · · · · · ·			

VIII, Receptor Survey Mapiel

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All the Call					•	
η (* * * * * * * * * * * * * * * * * * *	A. Has a map been provided, with an appropriate scale to adequately show all surface water bodies within 1000 feet of the petroleum contaminated area?	(x)	N		1.	
	to adequately show all surface water bodies within 1000 feet of the petroleum contaminated area? Has the potential impact to the surface water been adequately investigated? If water samples and/or soil samples have been collected, has a statement been provided on sample collection and analysis methods? Has a narrative summary been provided to evaluate the potential for hydrogeological connections between the contamination and the surface water? Has a map been provided, with an appropriate scale to adequately show all utility conduits within 200 feet of the petroleum contaminated area? Has the potential impact to the conduits been adequately investigated? Has a detailed statement of investigation in a first or procedures been provided, which should include identification of all soil and or vapor sample investigations? Has a narrative summary been provided on the conduits investigations conducted to determine if the vapors are present in confined spaces and/or in occupied structures? Has a narrative summary been provided to evaluate the potential for hydrogeological connections between the contamination and the conduits? Has a tabulation of all conduits and confined spaces been provided, which identify the type of conduit or confined space, conduit backfill material, slope of conduit and trench, and relationship to groundwater level? Are the locations of all active, abandoned, and plugged groundwater wells within 1000 feet of the petroleum contaminated area provided? Are copies of available well logs and the names	()	N	1	2	ذ
	collected, has a statement been provided on sample ry	¥	н	1	ţ	1
	the potential for hydrogeological connections	Ŷ	Ħ	1	2	3
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N 1	/ Investigations conducted to december it the	ija ik Teor		; \ \ . \	r	٠.,١٠
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	the potential for hydrogeological connections	¥	R /	1	2	3
a at	been provided, which identify the type of conduit or confined space, conduit backfill material, slope of					
The same		Υ	(11)	1	2	š
A STATE OF THE STA	plugged groundwater wells within 1000 feet of the	· Y .	k	:		
همر"	Are copies of available well logs and the names and addresses of well owners provided for identified wills within 1000 teer of the Contaminat of		.		į	
			v 4	5 5,1	n sid	

at the site?

 Is a natrative provided which discusses the status and effectiveness of the free product removal system in relation to the hydrogeologic conditions

Contemination Source

Has the source of contamination at the site been identified? Appendix 13 - "XII(B) - Off-Site Contamination Source Support Data? Has sufficient evidence, including analytical data and maps showing potential off-site sources and groundwater flow direction, been provided to justify the conclusion that the contamination at this site is due to an off-site source? HILL SITE RISK CLASSIFICATION INTO THE TANK THE COLOR OF THE Questions for evaluating if an adequate investigation has been completed to properly determine site risk classification. Justification MIST be provided, for each response, in Appendix 14. JUSTIFICATION FOR SIGN DISK Bensene in occupied structures: File review: Are there documented reports of fumes or vapors in occupied structures in the immediate area?. If yes, has an adequate investigation taken place to determine if the TLV-TWA for benzene in occupied structures exceeds or is likely to exceed 10 ppm im an 8 hour period? If yes, is the method of analysis and all supporting laboratory data provided? Has an appropriate justification been provided to determine risk classification? Combustible Games in confined spaces: File review: Are there documented reports of fumes or vapors in structures, basements, sewers, utility conduits or any other confined space in the immediate area?

-xceed 10% of the LELP

If yes, has an adequate investigation taken place to detarmine if the concentration of combustible is it

œ ´	If yes, is the method wod instrument used for analysis identified?	¥	И	1	2	3
d.	Has an appropriate investigation been performed to evaluate the potential of combustible gases to collect an confined $s_{\mu,\nu}$. The petrol is contributed wheat	Y	Ħ	1	2	3
.*	Surface water criteria:					
ä	File review: Are these documented reports of surface water quality violations suspected to be from the petroloum contamination at this site?	Y	ĸ		•	
t.	If yes, has an adequate investigation taken place to determine if the contamination at this site exceeds or is likely to exceed the water quality standards contained in Subrule 567-61.3(4558) of the IAC.	Y	н	1	2	3
c	Has an appropriate investigation been performed to evaluate the potential of contamination migration to exceed the water quality criteria standards outlined in Subrule 56761.3 (4559) of the IAC?	¥	H	1	2	3
4	PVC Drinking Mater Line:					
*	File review Have there been any reports indicating that still contamination may be in contact with a stillty trench containing a PVS drinking water line in the area of petroleum contamination?	Y	N			
£.	Has an adequate investigation been conducted to determine the extent of soil contamination which exceeds the corrective action limit in the vicinity of the FVO line.	¥	N	1	2	3
r	Is the vationals for the response indicated (Migh risk or Nov supported by maps and analytical data)	¥	Я	1	2	3
	Utality trenches:					
A	Fire review have there been any reports indicating that contamination which exceeds the corrective action variet, as contamined in Subrule 567-135 8/8, of the IAC, 18 is contact with a utility trench?	Υ	ß			
	By in adequate investigation feel conducted to determine the extent of soil and/or groundwater contamination which exceeds the corrective action in the the vicinity of the utility conduits?	Y	ĸ	1	2	3
	If the Fill make fill the ren, Indood Righ risk or Nov supported by maps and analytical data:	Υ	N	1	2	3

6.	Damage to utility conduits or structures:				•	
Δ.	rile review: Mave there been any reports indicating that contamination is present at concentrations which is causing or is likely to cause physical damage					
	to a utility conduir or structure?	Y	Ħ			
b.	Is the rationale for the response indicated (High risk or No) supported by maps and analytical data?	Y	и	ì	a r	3
7.	Soil contamination (above CAL) within 1000 ft of an active well:					
a .	Is the rationale for the response indicated (High risk or No) supported by maps and analytical data?	Y	и			,
b.	Does the rationale provided outline sufficient evidence to justify the response indicated?	Y	Ŋ	1	3	ž
c.	If classified as High Risk, has evidence been provided to justify that the site be reclassified as Low Risk?	Y	N	1	3	3
8.	Soil combamination (above CAL) in contact with protected groundwater source:					
۵.	Has the seasonal high water table been identified?	Y	И	ì	2	,
b.	Has evidence (analytical data and/or hydraulic conductivity data) been provided to indicate if the groundwater is a protected water source?	γ.	N	1	2	3
c.	Is the impacted groundwater aquifer a protected groundwater source?	¥	N	N/A		
đ.	Is there sufficient evidence to justify the response indicated (i.e High Risk or No)?	Y	ĸ	1	2	š
•.	Is the rationale for the response indicated (High risk or No) supported by maps and analytical data?	Y	ь	3		
9.	Maret topography or area of fractured limestone:					
ā.	Based on site or areal geology, is this contamination zone located within an area of fractured carbonate					
	bedrock or in an area of kurst topography?	Y	N	1	2	•
Þ	(yes, the on classic (as him rish	٠	*		;	
c.	Ham documentation been provided to indicate that this site may be reclassified as Low Bisk based on the					
	factors outlined on page 17 of 20, Section A., no 5	Y	N	- :		

•		:		106.5 130 To	हुआ हा सन् चित्र होतीय	1965 1965
10	Private or public mater supply:					
•	Are there any active public or private groundwater wells located within 1800 ft of the petroleum contaminated area (see Appendix 12)?	Y	N	1	2	3
ħ	Has a public or private water well been or is likely to be impacted by contamination to the extent that an MCL is exceeded, or in the absence of an MCL, and Action limit is exceeded?	Y	N	ı	2	3
11.	Protected groundwater source:					
a .	Has the groundwater at the site been impacted by contamination to the degree that an NCL or action level has been exceeded?	Y	N	1	2	3
Ł	Has the groundwater been defined as a protected groundwater source?	Y	N	1	2	3
¢.	If no to (b), has sufficient evidence, including analytical data (i.e., TDS), been provided to support conclusion?	¥	N	ı	2	3
12	Man made structures:					
٥	Are there any natural or man-made conduits located within 100 ft of the petroleum contaminated area which could allow the vertical or horizontal migration of petroleum contamination to a protected groundwater source (ref. Appendix 11)?	Y	н	1	2	;
13	Public of private water source:					
a	is the petroleum contaminated area within 1000 ft of an active public or private water supply (ref. Appendix 11)?	Y	и	1	2	
ь	If classified as High Risk, has evidence been provided to pushify that the site be reclassified as low Pisk?	Y	N	1	2	
14	Material separating groundwater source from contamination:					
a	is there a thumbulet three merezal you like all uncontaminated soil free of discontinuities, with					

a hydraulic conductivity of less than or equal to if miners may between the contamination cone and a protected incombatter source or a groundwater services as a purity or private water source?

DECR	1 9

314 4 1 1 Kg 5

**						
e.	If yes to (a), has sufficient evidence been provided to support the statement?	Y	N	1	2	. 3
d.	If classified as High Risk, has evidence been provided to justify that the site be reclassified as Low Risk?	y	к	1	ï	3
В.	LOW RISK SITE COMPLETIONS					
1.	Does the soil TOH concentration exceed 100 mg/Kg or does the groundwater contaminant concentration	'3 s .				
	exceed the MCL or an Action Limit? 7 Veg	630	N			
2.	If yes to 1, do High Risk conditions exist at the site?	Y	М	1	2	3
3.	Do High Risk conditions \$7, 9, 13, and/or 14 exist at the site?	VII A	n			
4.	If yes to 3, has sufficient evidence been provided to support conclusions to reclassify as low risk?	. X	И	1	7	3
c.	No Action Required Site Conditions					
or list	s the SCR show that soil TOR concentrations are equal to less than an MCL and that the groundwater contamination qual to or less than an MCL or in the absence of an are squal to or less than an action level and high tor low risk conditions do not exist and are not		/=-			
like	ely to occur?	Y	(N	3	2	3
Do l	HIGH or LOW Risk conditions exist at the site?	(x)	Ħ	2	2	3
шу	Corrective Action Response They proposed laws to	 ≱ bs	rifenji	Ġ.		v - 1
A.	High Risk Site Corrective Action Recommendations		₹ 4∶Σ'			
1.	Have the following been identified for the petroleum contaminated area:					
Δ.	Vadoso zone soil contamination?	1	p	1	2	,
b.	If yes to is., has the approx, volume of contaminated soil been determined?	١.	N	1	÷	
c.	Dissolved Thase petroleum product in the groundwater?	Υ	N	ì	:	4
d.	If yes to ic., has the approx, volume of contaminated groundwater been determined?	γ	N	1	2	,

●.	Free phase petroleum product present?	¥	¥	ı	2	3
ſ.	If yes to le., has the approx. volume of free product been determined?	Y	M	1	2	3
2.	Have at least two (2) applicable treatment technologies been proposed?	Y	И	1	2	3
	Appendix 15 - *X1V (A3) - Treatment Technology Rvaluation	×				
4.	For each applicable treatment technology (minimum 2), has of the following been identified and/or evaluated? identification of treatment technology 22 for ments method effectiveness 3 reliability 4 site characteristics 5: environmental, public health, and safety benefits and/or disadvantages 6. costs Appendix 16 - *XIV (A4) - Best Available Technology (BAT) Ras the BAT been identified? Has a in-depth evaluation, detailed justification, and explanation for selection of the treatment been, provided?	¥	И	1	2 2 2	3
В.	Low Risk Site Corrective Action Recommendations					
:	Have the following been identified for the petroleum conf	tamina	ed ar	9A:		
a .	Vaduse zone soil contamination?	¥	X	1	2	(3)
Þ	If yes to la , has the approx volume of contaminated so been determined' $\ensuremath{\wp}$		N	1	3	3
С.	Dissolved phase petroleum product in the groundwater?	Ÿ	N	1	2	3
₫	<pre>if yes to in has the approx volume of contaminated qroundwater been determined?</pre>	Y	(R)	1	2	3
٠.	Fire phase petroleum product plement	¥	Ä 3	1	2	3
t	If yes to le , has the approx volume of free product			,	`	,

Appendix 17 - "XIV (62) - Nest Management Practice"

Has a dotailed "Best Management Practice" plan been provided which discusses the items listed on Page 20 of 20 of the SCR format, Section B(2)?

Appendix 18 - "XIV (B3) - Monitoring Plan"

Has a monitoring plan been provided which outlines the number and locations of monitoring sites, and is the plan consistent with expected contamination migration patterns?

If soil contemination only, does the Monitoring Plan and Best Management Practice allow for the determination of the following:

movement of soil contamination?

a measurable decrease or increase of contaminant 2) levels in the soil?

an impact to the groun/water?

Does the monitoring plan meet the frequency recommended?

Additional Comments:

It is an incorplete School Number till and my port of a have been provided. Receptor on en, de est ches and a quish finding plume de limitera and all en olde son accentable



February 15, 1993

TRICTHY J. VERHAGEN
Vice President
and
Associate General Course

VIA FEDERAL EXPRESS

Iowa Department of Natural Resources Underground Storage Area Section Wallace State Office Building Des Moines, Iowa, 50319

Attn:

Ms. Becky Schweite

Re:

Marley Pump Company Davenport, Iowa

UST - Site Completion Report

Enclosed find a copy of the completed lowa Department of Natural Resources Leaking Underground Storage Tank Site Cleanup Report for the Marley Pump (Red Jacket) site located at 500 East 59th Street, Davenport, Iowa.

This report was completed by Metcalf & Eddy on December 8, 1992 and was received by the undersigned at The Marley Company on December 10, 1992. Today, in discussions between Davenport personnel and this office. Hearned that the report had not yet been submitted to your office. In reviewing the file to determine the status of this matter, it became apparent that the report was not forwarded to you on December 10th because of the misunderstanding (on my part) that a duplicate copy had been sent directly to you by Metcalf & Eddy.

I apologize to IDNR for the delay in the submission of the enclosure.

If you have any questions regarding the above, please give me call at your convenience.

Very truly yours,

In & Johnson

œ

Dan VanZuiden - Davenport

C. Nelson - Davenport D. Story - Metcalf & Eddy

L. Donahue - Marley

E with the speed to

COPY SCTS84 IOWA DEPARTMENT OF NATURAL RESOURCES

*** IMPORTANT: READ ALL INSTRUCTIONS REFORE COMPLETING ***

Leaking Underground Storage Tank Site Cleanup Report (SCR)
SITE IDENTIFICATION
UST No: 6L T 5 BH UST Registration Number: 79 100 56
Size Name: THE HARLEY PLUP COUPANY
Site Address: 500 E 5944 Ste66 T.
City: DAYENPORT
RESPONSIBLE PARTY IDENTIFICATION
Name: THE HALLEY PLUP COMPANY
Street: 500 E 5944 STREET
City State: Zip Code: TA Sagos
Submittal Date:
SITE RISK CLASSIFICATION (mark coo): [] HIGH RISK [1] LOW RISK [] NO RISK
STATEMENT OF CERTIFICATION
The below named certify that this document, appendices and attachments satisfy the Site Cleanup Report requirements of Chapter 567-135(455b) of the lowa Administrative Code and all other applicable state, federal and local requirements.
MILITAGE M. KATO MANN # 1861 Friest the Name of Registered Grounds age Productions Friest the Name of Registered Grounds age Productions
Make Make the Solar
Specture - Regularies Professional Signature - Responsible Party
Official DNR Use Only
Date Received: Comment Date:
Reviewer: Comment Date:
Date Reviewed: Approved Date:

Hydrogeological Cross-Section Diagram.

APPENDICES CHECK-OFF SHEET

Check the box to indicate the appendix is attached. Attach the appendices to the end of the SCR in the order listed.

Appendix 1 "H(C) - Tank & Line Tightnese Testing Results"
Copies of all results, supporting field data, and the third party evaluation of the leak detection system. Explain the cause of testing anomalies and discuss any corrective action or repairs stude to the system. Label as U(C) - Tank & Line Tlahtness Testing Results. Ancendix 2 "I(D) - Topographical Site Mas" Topographic map of the site and surrounding area. Label as MOJ - Topographical Site Map. Appendix 3 "E(E) - Scaled Size Floa" Mao showing the site and immediate surrounding area. Label se INE) - Scaled Site Plan. Appendix 4 "K(F) - Scaled Site Vicinity Map" Map showing the sits in relation to general area leatures and the locations of properties adjacent to the site affected by the petroleum contemination or with potential to be affected as a result of contamination movement. Label as IIIF) - Scaled Size Vibrally Map. Annendix B "IMED - DNR Form 542-1392, Sell Boring Loss" Completed DNR form 542-1392 for each soil boring at the site. Label as III(8) - Soil Boring Leg. Appendix 6 "MIM - Sol Contemination Flume Map" Sall contamination plume map depicting the full extent of vedore zone soils exceeding the soil contamination corrective action levels. Label as HI(H) - Soil Contamination Pluma Mag. Annendix 7 "IV(8) - DNR Form \$42-1392, Monitoring Well Construction Diagram" Completed DNR form 542-1392 for each monitoring well at the site. (abel as IV/8) -Monitoring Well Construction Disgram. Appendix 8 "IV(G) - Groundwater Contour Map" Groundwater contour map based on work done at the site. Label as IVIGI - Groundwater Contour Man. Accendiu 9 "SV(6) - Groundwater Contamination Plume Mape" Groundwater contomination plume maps depicting the full extent of free phase product and dissolved phase contamination exceeding the groundwater corrective action levels under 135.7(9) and the levels of groundwater contamination within the plume. Label as /V/8 - Groundwater Contamination Plume Map. Appendix 10 "VI - Hydrogeological Cross-Section Diagram" Stratigraphically correlated hydrogeologic cross-section or three-dimensional diagram which adequately defines the spatial relationships of subsurface materials at the site. Label as VI- Appendix 11 "VIII - Receptor Survey Map"

Site area map with the results of the following receptor surveys illustrated:

movement is detected. Label as X/V/B3J - Monitoring Plan.

- 1) Surface Water Body Survey. Location of surface water bodies (i.e. lakes, pends, rivers, somens, etc) within 1,000 feet of the petroleum contemination and evaluation of the perential for time to be a hydrogeological connection between the contemination and surface water.
- 2) Cond. is Survey. Location of utility and natural condults and confined spaces within 200 feet of the patroleum contamination and the results of investigations to determine the potential for the condults to acq as a pethwey for vapors and product.
- 3) Groundwater Well Burvey. Location of ective, abendoned and plugged groundwater wells within 1,000 foot of the pepulinum release.
- 4) Groundwater Barriers Survey. Locations of barriers and an explanation of their significance to contamination movement.

Label as VIII - Recaptor Survey. Title survey nerretives with the headings above.

Appendix 12 "X - Laboratory Date Sheets"
Copies of laboratory data sheets. Label as X - Laboratory Date Sheets.

Appendix 13 "XIK(B) - Off-Site Contamination Source Support Date"
Data to support allegations of off-site contamination sources impacting the site. Label as XIK(B) - Off-site Contemination Source Support Date.

Appendix 14 "XIII - Site Risk Classification Justification"
Justification of risk classification. Label as XIV - Site Risk Classification.

Appendix 16 "XIV(A3) - Treatment Technology Evaluation" High Risk Sites Onlys
Evaluation of treatment technologies. Label as XIV(A3) - Treatment Technology Realization.

Appendix 16 "XIV(A4) - Best Available Technology (BAT)" step Risk Sites Onlys
Identification of the best svalidable treatment technology. Label as XIV(A4) - Best Available
Technology (BAT).

Appendix 17 "XIV(B2) - Best Management Practice" (Low Mith Sites Only)
Detailed best management practices plan. Label as XV(B2) - Best Management Practice.

Appendix 18 "XIV(B3) - Monitoring Plan" | Low Mith Sites Only)
Monitoring plan that will ensure any significant increase in contamination concentration

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D. Describe the circumstances of the discovery of the release:
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Character of the same and the s
FACILITY WOULD INCLUDE THESE UNDERGROUND STORAGE TANKS. PRINT TO INSTALLING AND
PRINCIPLE THE TESTING FACILITY, AND ENVIRONMENTAL ASSESSMENT NEGOCOCK
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SERVICES, JAC. TO COMMICT A SUBSECTION THE SERVICES
bold HOLE, BH-1, ALEAR THE SOUTHWEST CHILDE OF THE TESTING HELDING
THE DATA FROM THE 3/10/92 INVESTIGATION INDICATED THE PRESENCE OF
RTGE CONSTITUTIONS IN WATER ONLY.

E. Describe the initial actions taken to shate the petroleum release:

THE MARILY PLUP GO CONTRACTED METCHE & EDDY THE. TO CONDUCT A

LIMITED SUBSURFACE INVESTIGA	FORE TO 1	47657 GA	TE THE	CATERA	H 40	
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Current Nice Constitions		0.07	1,13,14	P 13.2 4	Eli (27	<i>! ::</i> ;
A. Provide a general description of the size p			:		_	
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boring. The borings terminal	minima	Matodi, mac	ernette d	'5 cm 3'	WPF AT	71.
fine groves (glown till).						
B. Description of the existing UST system:	This page 2	مهموط <mark>او شت.</mark>	epied of more	Sten 6 ands 5	edig er di	alte.
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Product Second NAS	ocine.			1		1
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Campains HO present & is out-of-um		<u> </u>	ــــــــــــــــــــــــــــــــــــــ	للنبا		<u>L</u>
C. Think & line tightness tests reprised by EDNR ? (yes or up)			<u></u>			
Test Lock Rate (p/k)	IA 1		<u>i</u>	<u> </u>		1
	JAL.	. 1	ł	1		1
>> Altack Appendix 'II(C) - Tank & If tanks or lines was different tested, estade copies detection system. Explain the cases of testing sale.	Liese Underso of all modes, an eather and discuss	period field in the state of th	in end the this colours or rep	- party crein 	nina al'és la grana.	iesk
>> D. Attach Appendix *II(D) - Tope Provide a topopulated map of the site and extrem or URGE maps. Legitle content elevation differen	عليمة بهد يبتلب	put from week	fran at the ei he provideal.	e, city serveys Two dest com	s where som	11-14-16- 10-16-16-16-16-16-16-16-16-16-16-16-16-16-

>> E. /	Attack Appendix "II(E) - Scaled Site Pleas	
Personal a sec	alad map (teals) inch = 79 to 50 hm) of the title and the iscandide serviceling true. It must the	ng the following.
but in mor li	mitted to: 1) Laureine and occurs of existing and removed USTs, product flore and dispersion.	2) Pertinent san
fueres (i.e.	. buildings, made, wells, weapvoys, malijoslos, strij.	<u> </u>

>> F. Attach Appendix "MF) - Scaled Site Vicinity Map? Provide a scaled (scale I mith - 200 to 500 fact) vicinity map showing the size in relation to a smaj show the following, but is not limited to:

- 1) Pertinent proud feature (i.e. buildings, reads, waterways, sinkholes, etc.)
 - 2) Lecenies of properties effected to the site affected or potentially affected by (

List below the senses of owners of property effected or potentially effected by the age to the data provided on appendix "D(F) Staked Sho Vinisity Map."

Property Owner Name	Property Address	Owner Maliting Address
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OCKUS PEST CONTROL	DAVENBORT, LOWA	theore at older die not partie the reformation ofth several extends to contact them.
A-I RENTAL	DAVELAGET, IOWA	the greater and state as the garden did not toom the whois medica address
CENERAL GROVE	I HAVEN ABOUT STREET	The general mass give at art Englished markers addressed that ground make General
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who feeling the property never on whether they obtain their water from a prime wall or the copy of the copy of Dries ports owners indicated there they obtains then were first the copy of Dries port

III. Sed Sampling Methods & Findings

SCONFINE YOUR ANSWER TO THE SPACE PROFINCES.

A. Boring number and placement.

Rapido and junity the retorate and to determine the number and placement of soil burings. Peacem that should be taken just constitutement when developing the restorate include with restrictable, such academicity, mobility of constitutes and destine. It is an interesting to the release. The number and placement of burings must be reflected to allow the:

1) determination of the history and regularly aspects of cell contemporation. To assume developing of the straightple, and 2) identifications of the transition may between these cases that do end on the contemporation of data accordance in the remarks are will require the construction of encourse developed through the interpolation of data.

Additional information will be regularly to attendance the location of encourse laws if I is determined that the lines are unit accordance with the restricted or provided, or the interpolation exchanges appear to be qualified.

INTERIT & CODY'S INTERIT OF THE DESTE MAD QUILLOSS MAD QUILLOSS FULL MEDICAL ACCORDANCE AND THE INTERITURAL OF THE CONTENT OF

Method 4 Eddy's Mythoga Mic Disso who disso when the companies in investigation and IAC 135 Ruits and Guidelings. Further wife, extrement some as buildings, flattery is the first prayed a lose in direction monitoring when constitution acceptants.

MW-1: Honoroung wes MW-1 was placed upgradium AND WITHIN TO feet of the classes in-fire with the And Administrate DATA SATHERED FROM THIS WELL WILL HELP DETERMINE THE PERTICAL FOR LATERIAL ENTERHISE CONTAMINATIONS FURTHERMISE, THE PACE STRATEGICATION WELL STRATEGICATIONS.

MW-2: Heriteria wer HW-2 was placed boundradent. The unitating werends placed in this coation to determine whether senecaendromaintains rath was vario. Data, both som and glowidwater, gathered from the monitoring were with help determine the largerand vertice extent of contaminations furtherede, the bata accurately descended the soil stratigraphy weeks ary for future remoderation.

HW-3 HOW TOLING WELL HW 3 WAS PLACED UNGRADIENT OF THE UST MS. THE DATA, BETH SOIL AND GROWN OWATER, GATHERED PROLITING MANITORING WELL, WALL HELD DETECHINE THE WEST-CHE AND LATERAL GETTENT OF CONTRAMINATIONS.
FILETHERICALS, THE DATA APPENDIATION DESCRIBES THE SOIL BERKATIG RAPPLY WEEDS STARY POR FILETHER LEMBORATION.

>> B. Attack Appendin "MI(B) - Sell Dering Logs" Complete and ottach a DOS form 543-1302 for moth sell bering of site.

C. Explain the actions when to prevent cross-commission between bordholds during installation and marphing. All drums half a guaperat; augres, spale spoons, were decembrated private to intensive investingation by steam elements. The stram change without appropriate investing to ps. WITH WATER TEMPERATURES OF 200°F.

D. List the vapor aquipment used. Describe its me and evaluate on procedure. Engineer must be addressed at the beginning and and of and day at the sine. He published the best addressed of Missister for the process of the sine of the best of the process of the process of the process of the process of the process of the single pro Aluminum fill was please tight for over the form. The soil for lid as a please on top.
The soil stomps with allowed to vaporite for at least 10 minutes prior to a noighboring the hodges which the PiD. The PiD agui process was call broken. prior to during, oil ofthe sompling procedures.

the soil tops herospo at results indicate that Oppost head spect and strident for all birings belook that 3. The 15.0 - 17.5 ft internal indicated a 141 paper radicing. The sample was collected for laboratory earlysis. Furthermore, the PID was not weeking opprepriately on Ma-1 for the interval 2.5 - 10 feet. The PID was brecate brated and Egon worthis appropriately there often.

Tabulate Dulty Calibration Dieta In The Chart Below									
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>> F. Altach Agemells "F150) - Sell Co Pravide and com

IV. Groundwater Sampling Methods & Findings (CONFUE NORAHSWEE TO SPACE PROVIDE

A. Boring number and phecesters.

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consideration of boding plocement eles given as that the most date can be obtained from one discrable pollbering / monitoring well location. Francework,

POLES AND REGULATIONS OF THE IAC 125 WERE CONSIDERED THE SOIL BREIN / LAWISEIN DELL PRATERIEST. THERE MONITORING WELL SWEEL CHESCAL AS THE MUSILIFIED AKECESSARI, SO THAT A GREWHOWARK FLOW CONTOUR MAP CAN BE DRAWN BY THE TELANGULATION METING ALSO, THE MONITORING MIGUS WERE PLACED IN SUCH A WAY SO AS I'D HELD DETERMINE THE CHENT OF CONTAMINATION. PLONICE BACEGROUND DATA, AND VERIFY OTHER CONSULTANTS DATA.

>> B. Attach Appendix "IV (B) - Monitoring Well Countraction Diagram" Complete and stack a DMR thou \$42-1302 for each manisoring well countracted at the abo

- C. Brokein permenent monitories well construction. If the following well constructed preference indicate the contagues on 1968. Form 542-1162.
- 2) method of chaning will companion polar to installation. Show cleaning: 3000 phi with water Temperatures of also F
- 2-inch dometer yoush through PVC
- S) termin that time . DID MOCKINE DECONED
- 4) how the rections of carings and screens are commercial. If it sale He reached joints
- 3) method and to tested their part and mote. The motor rate was greated in the another again of the follow) their angles but here preceded the preceded to the

- D. For examples collected from boreholder: (7-month) under month and continue of the least of temporary cosing and continue.
 - 2) Explain and justify the edisputey of well development procedures to make a represental a comple.

E. Explain and justify the adequacy of groundwater sampling and well purging methods. En REPARTS AND JUNES SECRETARY OF EXCHANGES SERVING AND WAS PARTING MEMORIA.

WILL CONTROL. The man the maj around where parting with a pro-cleaned Proc. Builty from new Rope. ([Small Values and reduced not when the majory man around processed from the following the service of the majory parting?

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P. Groundwater Data for Contour May Development (SURVEY DATA FROM ADMICENT SITES MAY BE UTELEDIN

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Describe the hardened want to servey the grossdomes services showners. The de rechmonte was a grown free in the east forten let. The buckmark and transport the top around close appropriately to most rest to the properties.

>> G. Attach Appendix "TV(G)- Groundwater Contour M. Franks a groundwate studyer may based as work days or the else and the of to the named 4.01 from history only used to determine byte

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2) provide confirmation that the authoriology and will provide the required levels of accuracy. Fig. by a rotto 1000 water diagray in structure to guide the user varough case bratin procedures. The internal The Kingdop telp the wear though a R. the proper to on our these the Pip is calibrated 3) gramidwater flows and my samulous week lands Port of a late

Asmolars qualitator lovets did not must during the sainpling nound.

4) Automatican in water broads with special completely on those which stay after gen

Hock or of grantwithe flow durchin occurred during this Sampling Merso.

>> L. Attach Appendix "IV(I) - Groundwater Contamination Flums Man

h Apptitution "EVIL) - Columnium or - Commission or commission or commission and direct red phase contention of the following the full extent of fine plane product and direct red phase contentions of promises of management of the plane of promises of management or which the plane of promises of the contention which the plane of the plane of the plane of the plane of the plane of the plane of the plane. The top post contents of management of the plane of th The extent of all aim prospire used to determine the entert of the phase. The top most occurrencing of phase extenses. Mostly the product thickness.

Sampling Quality Costra

Confine Your Answer to the Steam Press

Fronth a common that indicate the quality natural quality accurates (QCQA) when it land as stringest as these sentiaged is IDSR's Leaking Underground Store pulity assurance (QCIQA) procedure and Aning the site has ngo Pank Quality Asse The trends of the Co. is computated, Material alids, Inc., Johnson I taken Alloc splan is not more a trimpole 4 Alloc groundures. Fictually cold all bounds ar 0 APP to conduct this year work. At exceeded those requirement required by IDNR.

. Hydrogeological Cross-Sections

> > Attach Appendix "VI - Hydrogeological Cross-Section Diagram"

Develop, from the burings that were required to stantify the unions of one urne circles, or three-dimensional diagrams which adequately define the special calcifornings of unburflers memorials at The urner-captions chould Monteen the menocials in the constrainant to tons. The notices or diagrams ment include the f

Identification of types and themcarcisius of the periodical restorials person.
 Identification of contact waser between different periodical australia, noting acres of the Distribution of contact waser between different periodical australia.
 Distribut hosebale information including iteration, depth of terrationalms and image of out.

II. Hydractic Conductivity CONFINE YOUR ANSWER TO THE SPACE PROVIDED

A. Determine and record here the hydraulic conductivity of submerface manufals at the site. Manufy busings and water unit to abstraction hydraulic conductative. Inches subcolumns and data used to closic the values. AL. Convent. Cont. collection for hydraulic conductivity was used. Balldoon behaving for frond in all years. wells. HOLLE 7.80 10 men be " " " A E ANSW SEIVE (To) CM OF

140-2-9-3-10-ben fee Mar-1: 3.00+10-4-16-6-HW-21 2 59 + Kilon 21-(14)-(()) [#(r.)/#/¢.)#<u>}</u> 144-3-7.9:10 ton Bac M-3: 2 43410 6 4 546

It. Indicate the method wood.

C. If an equivalent method was used to determine conductivity, evaluate its accuracy.

D. Explain why the location/number of data points where hydraulic conductivity was determined advancely provides a representative indication of conductivity at the site.

they would conductively to be were performed in each week to Harston their way from magnifile across the site all within one order of magnitude).

VIII. Keceptor Survey

>> Attack Appearits "VIII - Receptor Survey Map* Provide a ris area map the identifies the following:

- A. Surince Water Body Server. Lection of surince water badies (i.e. bites, pends, rivers, general, etc.) within 1000 first of the principlus contaminated etc.. Insists we evaluate of the principlus contaminated etc.. Insists of excellent of the principlus of the principlus contaminated to the excellent water quality. Onch complete on typically each state to teachest contaminate the impact of contentiation on earther water quality. Onch complete one typically each state of the determinate the impact of contaminate water quality. Engagest subset induces to the selection with quality of the state of contaminate of contamination contamination of contamination of contamination of contamination of contamination of the suring to the contamination of the suring to the contamination of contamination of c
- B. Conduit Survey. Losselon of stilling (j. a., power lanes, storm and maintry sowers, the lines, etc.), untered (j. a. spitchele comm, etc.) conduits and anotheral spaces (j. a. lumenants, cannot spaces, etc.) within 200 fact of the case of particle assessments. Include a description of the viscoust to describe the property of the viscoust of particle and the viscoust of the streaming of the streaming of the township the set of the township to the set of the township time described to left-outed by sell cyron, produce type, places and connectivations, location and single of another confidence of the township time of contract the self-outer of confidence of the township time of confidence of the streaming of conduit or confidence of the streaming of the type of conduit or confidence of the streaming to grammher the township to the particle of the particle of the particle of the streaming to the storm with the harding "Conduit Stormy."

The following are recommended when conducting a vapor marker in an accessible utility conduct:

The vapor survey is required if there are suports of vapors or if the condeit has been impacted by the contamination or if there is the potential for vapors based on the type of substance release.

- 1) Um an emplorimenter and photolomization detector (PED) to take vapue readings. Suct at the memory charact to the site. Work to exceed made documents to the terminal of each where the product or vapues not estering, and the extent of the impacted man. "Units," each memory over and into establings of oxygen, explosiment and PED. Repeat pronouncests at mid-depth and water hard a chottom of the control.
- 2) Check air first directions from the partnersy to Attaceptes if differing of vegors is extended.
- 3) Collect voter or awage margin. Cheeve for sheen and where, if there is ader but an product, consider using the PSO to obtain a hand space entirph.
- as Charle all incoming studies branches. If odoes are detected, excellent the investigation regularies and development over if no product is present.
- 5) Check lift mations near the tite.

The following are recommended when conducting a continual states survey:

- 1) Check continued spaces many so suplessiment and PID. Record season and addresses of building said.
- 2) Chrish fire vegans new basessment, sower drains and near any free-failing streets.
- C. Green-poster Survey. Manifying active, installer, excellent and plagged groundwater wells with participants confluenced ones. Green-water productionis early said to report well information results earlies (i.e., eccurly health or manife departments, IDNO, Water 2009) Seeken (015/2004120). Gen (319/305-1575) sec.) and water well consect. An exalts a few patroleum contactionated sees. Laboric in the appendix: un. As easts server will be se
- 2) Creates of medicine well began
- D Hann and salarm of such well owner. Consider with well needer.
- 3) Description of the physical sectors for these wells are maked according to chapter \$67-30 IAC.

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NO CONTRACTOR OF THE PARTY OF T	ů n		M	8	13	11	11	1	8	8

II. Groundwater Burrier Survey. Identity the leastine of legation, G.e. familiation, structure etc.) that reads have an import on the maternant of the extensionine. Explain the significance passesses to the hydrogenizated authition at the site. Loted the suscentive in Application VIII pass vide the horstop. "Consultation District Survey."

IX. Certification of Site Health & Salety

2007年2月

Sistement of Verification of On-Site Houlds & Enfoy Proceduras

The On-Sitz Health & Safety Procedures and Conditions conform with applicable OSRA requirements.

No/1

X. Tabulation of Analytical Data

troupy this form if additional space is non

Soll Amelytical Data Inform	200
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Previde a tabulation of confysical data for obtain data first. If borings were sample ground surface, first. Record all elevation		ariinda d	لقعدا	اله السيطار	i Lie everione,	each templi list the 198	ng svent sl ulto for the	amples Streetsgi	icelly wid classes to	
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Extractorio Hydrotochena (1994)		T				\bot		T		

Company Applytical Data Information

Provide a teledation of groundscare identification scheme. If the well w Above See Lavel (ASL)	ermigent er nember	estytical man de	Ann. Lie s crass, li	160 may 1 may 11		a storing stogistily.	wife the Record	Sent well all obsers	in the well case on first
Bering/Well Heather	IMW-	11/10-2	Jan 3	1	1	1	_1	ı	ı
Des	10/, 14	10/42	10/62	1	ı	1	1	ı	1
Berchen (8 ASL)	944	11.TE	97.50 85.50 87.80		*				
Branes (ppb)	1	1	<u> </u>	<u> </u>	1	1	_1_	_1_	1
Mytherane (pph)	Ī	1	I	1	ı	1	ī	1	1
Tuinne (ppb)	1	1	1		Ī	ī	1	1	1
Kylena (ppl.)	1	7	T	1			$\neg \top$		<u> </u>
>> Atlach Appendix X 7. Provide segies of all inhustery des	dergary .	Ame (5.00	•						-

- D. Provide mentally reports to DMR on the attended DMR forms \$42-1434 and \$43-1425.

XII. Contamination Source

A. Identify the source of contamination at the sist.

He possibile source of contomination is a 500 gallon transportered street in largered storage tout.

>> E. Attack Appendix "XIIIE" - Off-Size Continuination Source Support Data"

If the communication more identified in XIIA) is an off-the source, justify your estation with "nelydeal data and supplements for discussion with "nelydeal data and supplements for discussion for discussion.

XIII. Site Risk Classification

A. REGIE RISK SITE CONDITIONS The feditioning describe high risk the conditions

CONDITION DISCRIPTION

CONDITION DISCRIPTION	
 The Threshold Limit Volum Time Weighted Average (TLV-TWA) for beause in encepted planeaures encocks as in 1860y to encock 10 pasts per million. for more, then 8 beaus purely. 	YES, MICH PREE
2) The economics of evaluatible game in managem, burnished, excel quase, willing conducts, storms or explicit controls, varies or my other confined spine essentia or in Minty to exceed 10 % of the Lover Explinate Limit (LEL).	() YES, MIGH REEK M NO
Derfuse water quality estimate standards contained in submile 567-41.3(0558) of the Josep Administrative Code are necessed or our librity to be standard that to a hydrogenhyin parametries between the surface water and the organization mans.	M 140 M 140
 Perculant, contrained sell executing 100 mg/kg tend organic hydrocubous is in captus with a mility trench containing a PVC debting water transmission line. 	M NO NOCE MAKE
 The perculsars contained in the office transles careads the touristive colors book in 135.8(6) of the loos Administrative Colo. 	N 100 MANUAL RESERVE
 Principum constituire is present at representations or extransmigras are Musty to energy be easier physical disease to a willing resolute or a statetime. 	N 200 TOGE TORK
 Soil with a total expanie bytersurface level poster than 160 sag/kg is instead within 1,860 final of an active well said as a public or private vester assets. 	U NO MICH HASK
A time may be classified as here with if a parachester perfectivitie can demonstrate the water emons will not be impossed by the end contemporates to the extent that to MCL, is cannoted as in the absence of an MCL as Action Lovel. In contemplate, Pennise that must be considered in ordering the impost of the recomming call restrictions in the lovel depth, construction, relies of influence and tent over hydrogeological deventmenties; and personability; trapsimilarity, and contemplates to the contemplate trap indicately, and contemplates to the contemplate trap indignation potential of the released substance.	Decomposition is provided to compact a LOW MISE, CLASSIFICATION 54 YES, LOW MISE [] NO
B) Bull with a total expects bytheoretes lovel granter than 200 explicy in located within the manneral high granterious lovel of a protocool granterious source or granterious saving a public or private water courts.	NO MEN' FINCH SHEEK
9) The petroleom release external is an orac of factored fittentates or level topography (i.e., tapography forms) on immunes, gypous, and other sector by dissolutions, characterized by shabilets, serves and sustanguest desirings).	1) YES, MICH ROOK
A also may be chareful for sisk if a ground-water productional can demonstrate that the presented ground-tensor means in the trees of the petrodrom retheats will not be impacted by the content that the MCL is extended or in the distance of an MCL as determined or in the distance of an MCL as determined in ordering the impact of the penalsses. Level is exceeded. Furthers that sums be considered in ordering the impact of the penalsses.	Decementation is provided to respect a LOW 2015. CLASSIFICATION
semplyimation include area hydrogenizated discontinuous experition distance between the assumptional area and patternial granulous transmits, and processibility and transmissibly, overlayering discharge, and estatementary experiments, and the profession, chandral obs- astumistics and integration potential of the volumed solutions.	() YES, LOW RESK M NO
10) A public or private water supply is or ir likely to be contanguated to the entent that on MCL is exceeded, or in the absence of on MCL, on Action Level is exceeded.	I YES, SICH MIK NO
11) A protected ground-para source is conteminated to the extent that an MCL is unuseled; or in the abstract of the MCL, on Actina Level is menaded.	I) YES, PAGE RISK. U NO

I YES, NO ACTION

I YES, HIGH RISK IYNO 12) The constrained groundwater plans is within 100 feet of natural or non-makin structures are consists that could effect the vertical or horizontal magneties of continuously as projected groundwater stotus that is used on a public or private water storage. I I YES, HIGH RISK 13) The constrained groundwater plans is widin 1,000 feet of as active public or private Water source. A nine may be elemined into trick if a premainant purchasional on demonstrate that the promoted general-mate source talk test in imported by the personnels consensation to the extent that on MCC, it consensated or in the channes of so MCC. In Action Lord is exceeded. Protoco four must be considered to reclaiming the import of the remaining genusciation consensation include well depth, encouraged, tricks of influence and use, area hydropoological effects further, and presentation that was presented on consensation and previouses, obscuring description and magnetical previouses, obscuried descriptions and magnetics protografic of the released Documentation is provided to support a LOW RISE CLASSIFICATION. M YES, LOW RESK [] NG manus. 14) The material separating groundwater serving as a public or private veter course, or which is a protected promoderator course, from and with a well organic hydrocuries lovel greater than 100 mg/kg which has a hydroglic conductivity greater from 10° maters per day. () YES, NEGH RESK N. NO The representing Material smoot have a hydrodic conductivity has then or equal to 16⁻⁶ motors per day, a staining an deletants of three means and to four of accounts of decontamidian between the same to be electrically. As note can be classified law risk if a present productor product on described law with the procedurate producting estatement with hydrogeological and risk communit who have the superstain statement of process or inhibit the subgration of contemporary in the superstain statement that the subgration of contemporary is the superstain that the MCL. Documentation is provided to support a LOW RISE CLASSIFICATION H YES, LOW RISK or middle that migratum or commenced to be presented to be started up or the first places of an McCL, on Action Lovel will not be seconded. A confinent temple of managements of the hydrocide combinatority shall be used to accountly identify the hydrocide combinator of the hydrocide makes the first places of the contemplation notes. Moreover, the hydrocide makes the hydrocide notes in the middle of the hydrocide notes in the hydrocid Renary between officers successment bestiege staff gas street 100 flot. The hypermanic corp require additional terrogramme, based on the hydrographysical sustain of the size.

IL LOW RISK SITE CONDITIONS

The following density low soft sits confisions. Check the boson that density the site confidence.

Conditions Description

1) The	gail escal argenio leptrocurbon concentration messale 1931 steplier er the necions encousle on MCC, or in the alsonare of an MCC,, an Action Lovel Is risk specificions do not exter and we get Might to occur.	orandal, NYES, LOW RISK
The second) gick exactitions weathered 1, 9, 13 and 14 exist, but decommendes in g white the claim that specific site confidence are present that Will youth in it elemidication.	o [] HO

C. NO ACTION REQUIRED SITE CONDITIONS

The following durable no action required site conditions. Check the began that decodes the site conditions.

Condition Description

 The real total organic hydrocurban encountation is equal to or has then 100 mg/kg and the gamesbooker contamination in equal or less than an ICCL or is the obsessor of an ICCL, in equal to or less than an Action Lovel and high side or love side conditions do not state and ers and littledy to cooks.

>> Attack Aspendix "XIII - Site Risk Classification Justification"

Maximum Conteminant Lovel on defined in solvets 567-41.5(4552) of the love Administrative Code
 Augus Lovel on defined in 567-135.2(4552, 4552) of the love Administrative Code

XIV. Corrective Action Response

The severive arises request involves the identification of the beparalles to address the executivestics at the site. The corrective entiiinkle trucquu lacketlegy or best sveilable w a concess your les consistent with the site risk chatillers.

Consumerate since characters in high with our he reclamified to low sink if the condition manning the elemification is absent. For manuals, if the only sensee is the most decided high with in homeon the stell covered a PMC wear line is sustained by the wink if the water line was explaned. For each what identified as high side, propose a describing common that will result in the reclamification of the size to low risk.

Please preced to part "A" if the clus has been sharified as high sist. Since obsesting to how talk one subject to heat unnequests procedus which will include contentication manalexing. Please proceed to part "B" if the site has classified as low sist. Since charified on no risk was not required to remotion or manifest or no.

High Risk Site Corrective Action Recommendations		
Identify below the controlled on phase and astimated phase volume Vadose some self controlled present? If yes, approximate volume of controlled oil present.	ver at the site: YES ()	NO [] Cable Yark
Dissolved plaze petrolous product present in the groundwater ? If yes, approximate volume of consuminated groundwater present	YES []	NO[] _Gallege
Free phase petroleum product present? If yes, approximate volume of free phase product presont	YES []	NO[] Calless
2. List at least two treatment technologies available to address the con-	straighten at	the site.
1		
>>3. Attach Appendix "XIV(A3) - Treatment Technology Evolu- Portils on evaluation of soft treatment technology listed in XV(A3) organized as	netion's follows	
1) TREATHENT TECHNOLOGY. Musicy the treatment inchesings		
2) TREATMENT METROD EFFECTIVENCES. Evaluate the transcent method: to acceptable levels and estimate the length of time it will take to reduce the energy	s expedicitly to ye reads to dista in	jone the compressits of research rise.
3) RELIABILITY. Evolute factors that may have an impact on the reliability of groundwater quality, histogloid growths, dusign complexity, weather, operational	De heringe v	ments. Countder such flatters on mentaling requirements, etc.
4) SITE CHARACTERISTICS. Evaluate the factors that may have an impact of Chamidae mois flatters at also prology, hydrodic conductivity, providentar on mounter hydrodic control of the ground-case plane.	, the providently utility, size female	of using the treatment wolled, in and shifting to proceeds and
5) COST ESTIMATES. Brokens stort-up, operational and maintenance costs.		
6) ENVIRONMENTAL, PORLIC HEALTH and SAFETY SEMERTS and DEL public bushle and safety bushles and disclosurages of the treatment system. Or discharges, groundwate injection systems, possule required, vandalism, accord,	maider much fact	un as die spilatieus, Vanderman
>> 4. Allach Appendix "AIV/AG - Best Available Technology List your releasion of the best technology to address the cost junctionies and emploration for releasion of this necknology. Best the junctioning attention of the production of the necknology. Best the employees are technology and production of the necknology. Best the stancely results, engineering and procedures production inflormed nestations, appearing sonts, and guidelines or rules of other regulatory agracion. Insten- empoweraged but must be assungated by system operational and technical de methodology relection. Do not incline treatment system design week until the pro-	unitation phono natification non fished trabaled consultation with pive transport to the fast will say posted boot swelly	i et dag also. Provide a desilled alore en probanteed fulgante artiste, site lyderparkey and expert in the full, regist and consisty design releases are not the best switche tracement his tracement technology example.

S. Report Subsuittal

Ò i

ž

3- Report parameter.

Frame and one copy of the completed SCR and appendions to the lowe Department of Hernel Reconner, List Coordinates, Walton building, Day Melana, 14 50315 and one copy of the completed SCR and appendion to GAB Buciness Services, Inc. 708 3817, Dos Meines, 1A 59222. Additional information or clarifornium stay to required.

Following approval of the PCR, IDNR will require the inhuments of a Couractive Action Durige Report (CADR). The CADR will reason trebalist information questic to the transmit system observe to remodest the site and a mentioning proposal designed to description the effectiveness of the system.

Live Bill Mie Corrective Acting Encounteredictions

ı. Ide V	ncify below the contamination phases and estimated phase volu- adose none soil contamination present? yes, approximate volume of contaminated soil present	YES []	NO of Casts Years
I.	implyed place perclaim project present in the groundwater ? Yes, approximate volume of contaminated groundwater process	Ass PE	NO [] Gallege
	nes phane petrol-um product prosent? Type, approximate volume of free phase product present	YES []	NO SA

- >>3. Attach Appendix "XIV(X2) Beit Management Fracti Funds a dealed has consequent procession, At a minimum, the plan ma
- 1) Description of look districts articities that will be implemented at the play.
- Substante or estivities and description of any problem of previous, and other se-volves will be implemented to proven additional examination.
- l) Assumption the earlythol and investigatery technic Vapor earlysis results will be compast provided that: ind requirements discussed and subsequed in this SCE will be different.
- a) it can be demonstrated that the mode being accepted and accepting points are unadaries to the describes of on supressure and increases in recommendes S.C., the peopling modes must be determined.
- b) Our obstructionarity or similar marked of analysis is used for eathlytic of excellent.
- a) Soughe for laboratory malyris goes to obstract if the following executing books an executing
 - 0.1 mg/l TPSC (near dearl facilities) for sell yes (in site, pooled versum extension)
 1.0 mg/l TPSC (near genelles facilities) for sell yes (in site, partied versum extensio
 0.5 mg/l TPSC (near genellesse (least special sell)
 1.0 mg/l TPSC (near dearl facilities) for sell fleed specs enalysis)
 10.0 mg/l TPSC (near genelless facilities) for sell fleed specs enalysis)

>> I. Allach Appendix "LIV(RS) - Monthering Fina"

Foreign a meninering plan for will once my significant because in contemination convenients or movement is sumber and locations of meninsing class must be conducted with contemination phase deficient, and perpetuition and general-rate flow districts. Include the maps to these meninsing bestimes. The following constructions and general-rate flow districts in the meninsiant complete must be completely as the possible. Person that must be conjustification include the migration potential of the retirement making include the sold or general-rate contemination occurs, note hydrogenispin districtions, and parametellity, i n of the self or grandwater continued

YEARS AFTER APPROVAL OF THE MONITORING PLAN

BAMPLE DI

2) me through time

minular quantum 2, 3 and 4, colorator quantum 2 and 4 artifactor quantum 2

2) from through six 3) server through size 4) tentus

4. Report Submittal

4. Reports consumers.

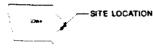
Flame used one etry of the compiled SCR and appendicus to the lives Department of Natural Resources, Lint Coorn
Wellium Bellding, Das Ideium, IA 50319 and one copy of the complaind SCR and appendicus to GAB Business Service
FOR 3077, Due Modern, IA 50322. Additional information or electrication may be reposted. am Juviers, les.

Monitoring results must be exhalted to the forest required by EPRE's Site Monitoring Report (SMR). A supp of the Site Monitoring Report will be provided after the SCE is approved.

APPENDIX 1

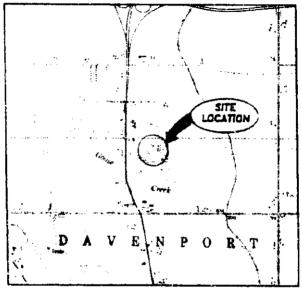
II(C) - TANK AND LINE TIGHTNESS TESTING RESULTS

Tank and line tightness testing was not completed on this tank. The tank was closed-in-place prior to any effective IDNR regulations.



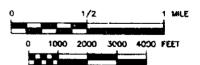
COOK COUNTY 7 78 N. RZW SEC. 12





SOURCE: U.S.G.S. DAVENPORT EAST, IOWA - ILL. (1975)

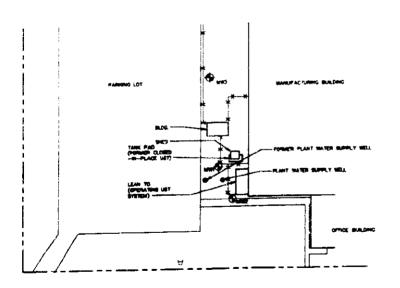
SCALE: 1:24000



TOPOGRAPHICAL SITE MAP

The Marley Pump Company 500 E. 59th Street Davenport, lowo

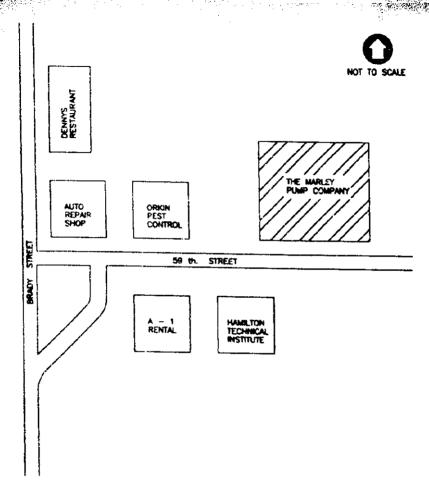
METCALF & EDDY





NO PRODUCT USES OF DISPUSIONS METER USED FOR THIS UST THIS WAS A TEST TANK USED.

SCALED SITE PLAN
The Marley Pump Company
500 E 59th Street
Devenport, lesse



SCALED SITE VICINTY MAP

The Marley Pump Company 500 E. 59th Street Davenport, lowa

Soil Boring Log - Part I

NOWA DEPT OF NATURAL RESOURCES ATTN: UST 900 EAST GRAND AVENUE DES MOINES, LA 50319-0034 Por maniform of meliatages salli (515) 281-8693

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READ PART IS REPORT COMPLETING

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FACIL							
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9 /	6160	o se	511	Aug	er-	/ PA	(INCHES)
BORIN	W DE	PTH (F	EET)	X BOX	INO DI	NO TEX	(INCHES)
5)	2	5 ₄	¥	64	incles		

BUILDIG # START DATE	END DATE	REFERENCE ELEVATION	UST NUMBER LUST NUMBER
MN-1 7 9/14 52	10 4/16/92 9	99.81	107910156 11) BLTS 84

2)	(3)	MOISTURE	15) No. type	io	17) (Sox Instructions on Reverse Side)
)- 2.5'	Brane	Has	Muj - 1 13 mod - D-215 15 10mg Passer 1 10mg	Oppm	FGe - Silly fine sand, trees or cryanics
15°-	Brown with Brown Howling	Morsit	Mu-1 i3" o d e.s.— in iong s.c. spirt sparal	la ."	Fig. set will trace argumes
5.0 [†] - 7.5	Brown with		13° 00 52 - 15' 100 7.5 spile 500 M	PIO MET S' WORKING PROPERLY NE REMAINING	FGC - S.44 with track clay
15- 10	Branch mus		16w-1 13°ed 17.5 15'lon 10 0 15plus 15papa	1	Fic - sitt with the clay
D'-12	grey Hollis	Heist	1460-1 34 ad 18.5 15' to 18.5 15pool 15pool	8 oppn	Fac - Saft, But with scraft clay
155	BING AN	A Haich	2.5- 6'10 150 1504	S O ppm	FGe - soft, changey sich

\$ CONTOUR TO ARBITERED DO	THEM ASL	 	
1	Elevation Measuring Point:	 	 -
18) OBSERVATIONS	Dela:]
(WATER LEVELS)	Level:		
	Time:		1

DNR FORM (10/90)

Continued on the Back

Soil Boring Log - Part I

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AWOL	DEPT OF	NATURAL	RESOURCES
ATTN:	UST		
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DES MODNES, IA 50319-0034 For constitues or posistence call: (\$15) 241-4693

Sheet $\frac{2}{\sqrt{2}}$ of $\frac{2}{\sqrt{2}}$

READ PART IS REFORE COMPLETING

FACELTY NAME

1) The Harty Pump Can pany
FACELTY ADDRESS.

7500 E. Shu Shart, Dongapar, T. WELL CONTRACTOR REGISTRATION
3) ID 00072 01

DRILLING METHOD

(Hollow) Styn Aircon

BORDIG DEPTH (FEET) X BORING DIAMETER (IN

BONDIG # START DATE END DATE	REFERENCE ELEVATION	UST NUMBER	LUST NUMBER
BONDING # START DATE END DATE	<u>]</u> 9η 44.81.*	197910066 (11)	BLTSBU

12)	COLOR 13)	MOSTURE	SAMPLE 15) No. type	PID READING	GROLOGICAL DESCRIPTION 17) (See Instructions on Revenu Side)
K.o - 11.5	Brach ARD		1410-1 5°08 15'0- 5'lon 17:5 5pt.4'	Oppn	
11.5' - 20.0	gray	House	Maj-1 3º c.d 17 5 - 5º ton 20.0 Special Special	& O-ppm	FGC - Very soft chapey set
10.0- 11.5	9.49	Hoint	HW 134 a IS sen IS pair	s i	FG: - soft, clayey-size
25.0	900	Hart Dy (245- 250)	15" oc 5' 10 3084 1400	o leben	Fisc. weby clay Fisc. hard, dry, glacial fill, many fine peoples
					end of social

* CONTOUR TO	ARBITRARY 100'	DATELY A	¥	 	
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(WATER LEVELS)		Level:		 	
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DNR FORM (10/90)

Continued on the Back

Soil Boring Log - Part I

Submit to: IOWA DEPT OF NATURAL RESOURCES ATTN: UST 900 EAST GRAND AVENUE DES MODNES, LA 50319-0094

Per esections or assistance call: (515) 231-3693

Shoet 1 of 2

READ PART II IMPORE COMPLETING!

FACILITY NAME 1) The Martin Peters Con

TO TO E 5944 STAN DINGUISMET, WELL CONTRACTOR REGISTRATION

3) XD 00072 01 DRILLING METHOD

BORDNO DEPTH (PERT) X BORING DIAMETER (INCHES 254 x 64 rider

BORENG # START DATE END DATE	REPERENCE BLEVATION	UST NUMBER	LUST NUMBER
19 MW 2 17 0 114 192 199 9 14 142	9) 99.71	10) PHOSC 11)	BLTS BJ

1267TH	COLOR 13)	MOISTURE 14)	SAMPLE 15) No. (type	PID READING	GBOLOGICAL DESCRIPTION 17) [See Prefrections on Revenue Side)
0-2.5	Block Brown		0-25'5'long	Oppm	Fige: Sith fine Sand, with trace organics
	Bracel	Danp	3ACCL		Che Fire sand with medium
6.5'- 5.0'	Втошн	Damp	phone phone	D ggm	Fide - hord, elongy-sieks
50'- 15'-	Brown - Breck	Base	Her-2 13" ad 50 - 15" larg 1.5" Isplat	Oppo	Fige - clayer silt, saft, trace organics
151-	Li Brown ara grey Howard	الواهالم	15-15'les	Oppm	Fac- soft, cloney siet
to 0' - 12.5	Braws me) lderst	10.0'- 15' lon 12.5' bout 5pect	8 Oppor	Fige - Soft, Clayry-side
15.0	grey	Hoise	12.5 15 12 15.0 Specification	S 0	Fac - very seft changey siet

ID OBSERVATIONS (WATER LEVELS)

T CONTOUR TO

ALBIRA

Time:

CO DATUM

Level:

MSG.

Soil Boring Log - Part I

Submit to

IOWA DEPT OF NATURAL RESOURCES

ATTN: UST

900 EAST GRAND AVENUE

DES MOINES, IA 50319-0034

For energons or assistance call: (\$15) 281-8693

Sheet 2 of 2

READ PART II BEFORE COMPLETING

PACELTY NAME

1) The Martin Purp Company
IPACELITY ADDRESS
TO STORE TO THE STORE TO THE STORE TO

2) 500 E 59H STEN DANGEROUT, TA

3) I'A 00072 of

BORING DEPTH (PEET) X BORING DIAMETER (INCHES)

5) 25 Lt & 6 14 welles

BORDING & START DATE | END DATE | REFERENCE ELEVATION | UST NUMBER | LUST NUMBER | REPORT | 10,74 10054 | 11) SLTSS4

DEPTH	COLGR 13)	MOISTURE		PID READING 16)	GEOLOGICAL DESCRIPTION 17) [See Instructions on Reverse Side]
50- 175	Brown and Brown and	Hoist	MW-Z I 300 d 15c - 15thone 17.5 Isolat I Spoons		FGC - Soft Clayer siet
115'- 200'	Brack and Grey Herhad	VeryHoist	LING BOOK	CHAMO	FGC- saft, claying piet
60.0° -	Grey	Hast	10 c 13 od 10 c 15 los 12 5 sou	Oppm	Fige - Very say, sally day
12.5'- 15.0'	gray gray	Drig	HIND-E 15"Cd. EX 5 15"long CS C Ispair Spoons	O MANO	Fac - sub day whi some making to fine sand Facor hard, dry, alexal till (clay with making the publics) life
				END of	Boeing
			1		
FC m 170	erd To loo	A SITPH	2. TATILL	Ac.	<u> </u>

CONTOUL TO NO! ALSITEAR DATUL ASE

Elevation Measuring Point:

18) OBSERVATIONS

(WATER LEVELS)

Levat:

Levat:

Tomat:

DNR FORM (10/90)

Continued on the Back

Soil Boring Log - Part I

Substanie, tox

IGWA DEPT OF NATURAL RESOURCES

ATTN: UST

DEPTH

RIO EAST GRAND AVENUE

COLOR

MINISTURE

DES MOINES, IA 50319-0034

C15) 221-8693

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Sheet	ţ	of	w

READ PART & BEFORE COMPLETINGS

1) The Mortey Plang. Componer

1500 E 59+4 St. Devender

WELL CONTRACTOR REGISTRATION
3) ID 00072 01

DEILLING METHOD

PID READING

4) DA (Hollow) Stand Aug er BORING DEPTH (PEET) X BORING DIAMETER (INCHES)

2544 x 644 inc

GEOLOGICAL DESCRIPTION

	<u>-</u>	
START DATE E	ND DATE REFERENCE ELEVATION 1 /NL 142 9) 49.42'	UST NUMBER LUST NUMBER

SAMPLE

12)	13)	14)	15, No. j type	16)	17) (See Instructions on Reverse Side)
0-2.51	Browns	Damp	UN-3 15" ed C-25 15 Hong Speat News	Oppu	Fige - sub with some clay, I like fix sand
15'- 60'	Brews	Pamp	HW-3 Bred 25 15 tone 50 Special	•	FGE- saft, changes siet, 1. He five sand, trace organics
5 o'~ 15'	Grey Mething	Damp	Mich Brad Sie Silen Sput		FAC- vory saft, clayer mat-
7.6'- 10.0'	Brown is the Grey Health		Lun-3 5 ad	S Oppo	FGC- very saft, claying mist
10.0'-	Light Brown	Heist	C Silver	2 Others	FGC - very self claying paint
15.0'	Light Brown	Hoist-	Mw 3 3°c. 12.5° 5 to 15.0 Separate	oppm	FGc. Yenzsey, clayey suit

ļ	Eleve	bon Measuring Point:	
ì	18) OBSERVATIONS	Dote:	
	(WATER LEVELS)	Level:	
		Tunet:	_

DNR FORM (10/90)

Continued on the Back

Soil Boring Log - Part I

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IOWA DEPT OF NATURAL RESOURCES

ATTN: UST

900 EAST GRAND AVENUE

DES MOINES, LA 50319-0034

For aunobious or assistance call;

(515) 281-8693

Shoot 2 of 2-

READ PART IS REPORT COMPLETENCE

FACILITY 1) The	MOTUS ADDRESS	Pino	Conso	May_	
PACILITY 2)500	ADDRESS E SPH MIRACTOR	Shu.	Druce	Sof 3	GA
WELLO	NIRACTOR	RECUSTR	MOIT	•	
3) ID	00072	01			
DRILLING	METHOD				
o PA			<u> </u>		ــــــــــــــــــــــــــــــــــــ

5) 25 ft x 6 1/4 inclus

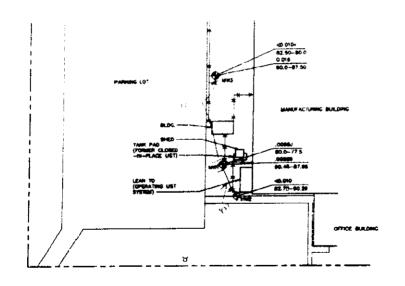
SOLDO F START DATE END DATE SHUBS 9 10 192 9	REFERENCE ELEVATION	103 THINGS (11) COT'S SCH
	access Inc. Inc. pp. pp. pp. pp. pp. pp. pp. pp. pp. p	And polar resources

DEPTH	COLOR	MOISTURE	SAMPLE	PID READING	GEOLOGICAL DESCRIPTION
12)	13)	14)	15) No. type	16)	IT) (See Instructions on Reverse Side)
50- 175	ું ઉ∗જ	Hout	136 d 150 - 151 kms 175 Special Kanada	141-pp	Fac- Very soft, chapty size
17 6'- 20 0'	3113	Haist	16" 15" both 16" 15" both 20 0 Species	Oppn	FGe- Yeng soft, daying pick
60.01. 22.5	grey	Herat	HK 3 15"od 10 c - 15'lone 24.5 Sphilippood	Oppm	FGC - Vary says, clayer acct (Co. of 200) FGG - hand, clay will fine public
22 5'- 25.0	8"3	Drug	22.5-15'1m 25.6 hpub span	O OPP	FGCo- gland Til

<u> </u>	Elevation Measuring Point:	 	
18) OBSERVATIONS	Date:		
(WATER LEVELS)	Level:		
1	Time:		

DNR FORM (10/90)

Continued on the Back





HOTEL AND MICH HERE LISED TO DETERMINE LISES TO DETERMINE LISES TO ALL AND MICH HERE LISED TO DETERMINE LISES WAS CONCALCINED PRICES BOIL COLLECTED FROM SOIL

. DUPLICATE SAMPLE YELD EXACT RESULTS.

CONC. OF SAM PLETANON

J = ESTRATED WALLE: CONCENTRATION SELOW LANT OF CLANTIFICH.

PLEVATIONS WITH MEASURED AGAINST AN AMERICAN SITE DATUM AT AM ELEWATION OF 100 PEET.

NOT ENOUGH SATA PORTS FOR A PLANE MAP

SOIL CONTAMINATION PLUME MAP

The Marley Pump Company 500 E. Seth Street Decempent, James

APPENDIX 7

IV(B) - DNR FORM 542-1392, MONITORING WELL CONSTRUCTION DIAGRAM

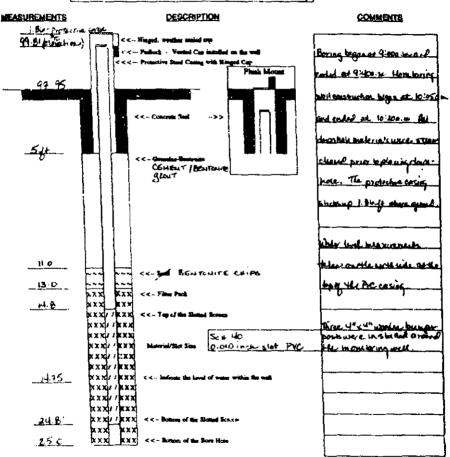
Boring Log - Part III

Temporary Monitor Well Construction

Τ

BOKING NUMBER: HID -I
DATE/THE START: 7/10/92 / (4.00.20DATE/THE ENDED: 7/10/92 / (4.00.20DATE/THE ENDED: 7/10/92 / (4.00.20DRILLING METHOD: PA (Holiage Superference)
LOGOED BY: 1600 PA (Holiage Superference)
Hebrat F & Edd 1, Take

LABEL ALL MEASUREMENTS and make comments as necessary



NOTE: The top of the casing may be constructed flush with the ground.

Boring Log - Part III

Temporary Monitor Well Construction

		٠		
LIME	co, I	AC.		 _
AMT CO	NTRACTOR N	AME		
ID	00072	61		
WELL CO	NTRACTOR #	ECISTR	ATION #	

BORENG NUMBER: A(u) 2

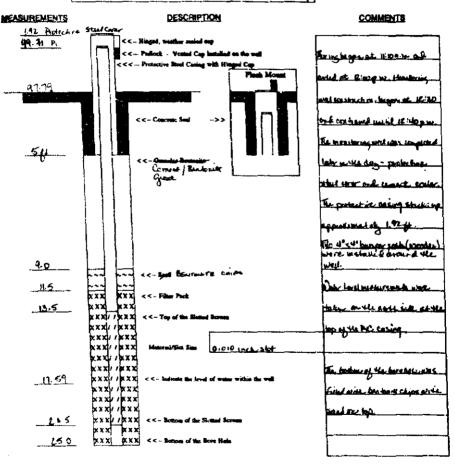
DATE/TIME START A(f/s) (3) 11: 100 m.

DATE/TIME ENDED: 9/16 (2) 12:00 m.

DEILLING METHOD: PA

LOGGED BY: He teaf of Code, Inc.

LABEL ALL MEASUREMENTS and make comments as necessary



NOTE: The top of the casing may be constructed flush with the ground.

Boring Log - Part III

Temporary Monitor Well Construction

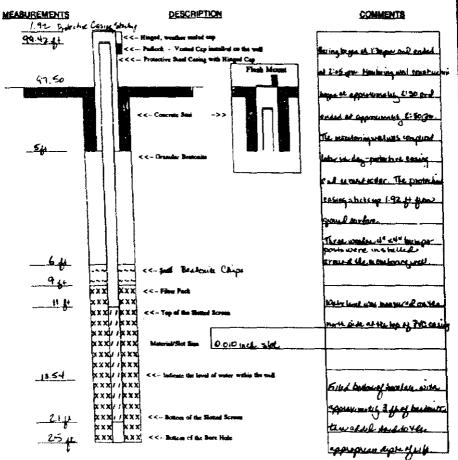
TALON CO. TALC

WILL CONTRACTOR NAME

T.D. COOT.2. C.I.

WILL CONTRACTOR RESISTRATION I

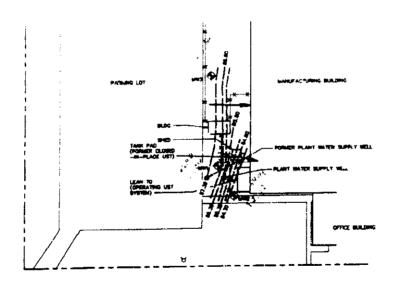
LABEL ALL MEASUREMENTS and make comments as necessary



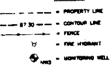
NOTE: The top of the casing may be constructed flush with the ground.

growing 6

 $^{\prime\prime}$ i t_{J}









GROUNDMATER SLEVATION DATA COLLECTED ON OCTOOCH 1, 1982.

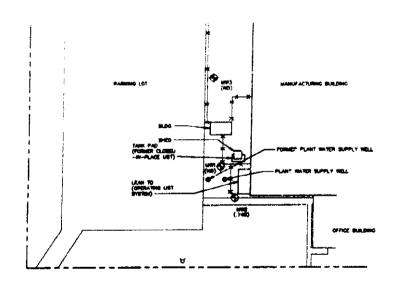
ELEVATIONS AND BASED UPON AN ANDITRARY STE CATUM AND ELEVATIONOF 100 FEET.

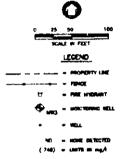
MONTHWIS WILLS WITH, MINE, AND MAIS, WERE WIED TO DETERMINE NYDRALLIS COMBUSTANTS.

GROUNDWATER FLOW DIRECTOR - EAST

GROUNDWATER CONTOUR MAP

The Meriey Pump Cumps 500 E. 30th Street Devenpert, Jews





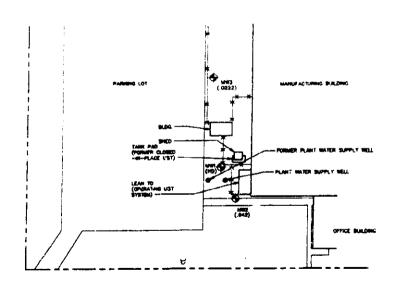
PRODUCT & NOT PRODUCT

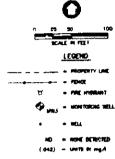
THE NAME ASSETTS ONLY PROBE LEVELS THAT EXCELL THE SOME STATE ACTION LEVEL FOR SECRETS - .866 mg/L

BRUFFICENT DATA FOR CONFOURS

BENZENE GROUNDWATER CONTAMINATION PLUME MAP

The Merley Pures Compan 200 E. 20th Street Devempert, 1999





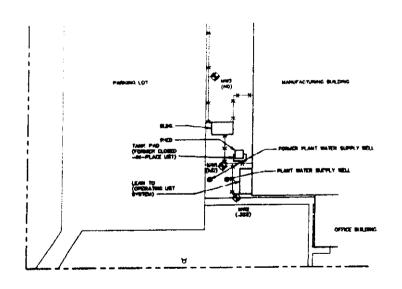
CREE PRODUCT IS NOT PRESENT

TOLLISHE LEVELS DID NOT CHEED THE TOWN STATE ACTION LEVEL I 48 MAG.

INSUPPRIENT DATA FOR CONTOURS.

TOLUENE GROUNDWATER CONTAMINATION PLUME MAP

Deverger's lower



0 25 50 160 SCAL R FEIT LEGENO

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→ мих - монтолика ид.

NO - HOME SCHECKS (DESK) - METTE ST MAN

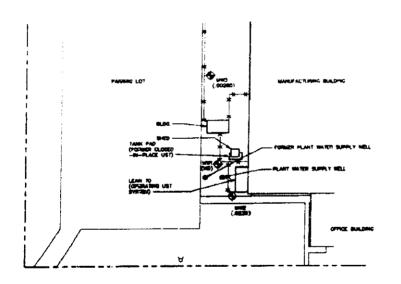
PREZ PRODUCY NOT PRESENT

CHAIR OPHISPE CONCOMMATIONS SE NO CHOCKED THE NUMBER AND PLANE WE CANCELLY THE SECOND LEVEL.

BISHPROKENY DATA FOR CONTRACTS.

ETHYL BENZENE GROUNDWATER CONTAMINATION PLUME MAP

The Marley Purse Company 500 E. 88th Street Developert, 1998





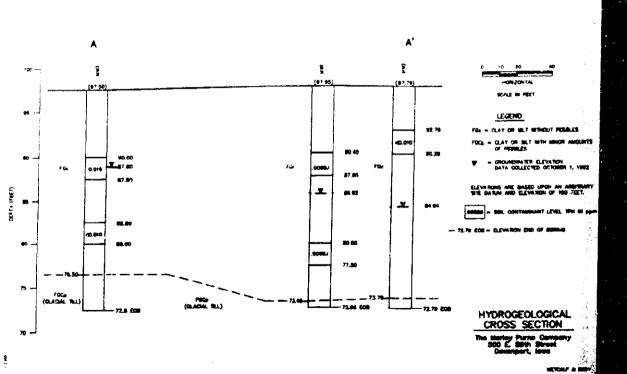
PHEE PREDUCT NOT PRESIDET

NYLONE CUMCONTHATICHE OID NOT EXCEED THE COME SALVE ACTION LEVEL OF 7 THINGS HAVE MADE MADE MADE THE CONSTRUCTED.

RELIPPICATION DATA FOR CONTOURS

XYLENE GROUNDWATER CONTAMINATION PLUME MAP

The Mericy Person Company 500 E. 89th Street Decembert, 1995



APPENDIX 11 VIII - RECEPTOR SURVEY MAP

A storm sewer clean-out is located at the southwest corner of the testing area. A draining trough is located at the southern end of the testing area. The depth and construction of this trough is unknown. Please see the attached figure for further details.

A buried telephone cable is located west of the facility and runs northwest-southeast and east-west. The depth at which this cable is buried is unknown,

The depth at which all the aforementioned lines are buried are not affected by fluctuating groundwater levels. The groundwater at this site ranges from approximately 11 feet below grade to 15 feet below grade.

All power lines are located above ground.

VIII - Groundwater Well Survey

Three deep wells exist on-site: former plant water supply well, plant water supply well, and a former test well. Please refer to the "Overait Site Plan Map" for further details.

- Former plant water supply well Well logs are not available for this water supply well. This well used to supply water to the plant for its operations. However, it is currently not in service. This well is not plugged. The depth of this well is approximately 240 feet below grade. This well is located approximately 24 feet west of the testing facility lens-to.
- Water supply well Well logs are not available for this water supply well. This well currently supplies water to the plant for all purposes: industrial and drinking. The depth of this well is approximately 2-0 feet below grade. This well is located approximately 5-feet west from the testing facility lean-to.
- Test well A 6-inch diameter, 200-foot deep test well was drilled on the facility proporty in 1979. The well was used to test Mariey Pump Company's jet pumps. This well is located in the testing facility.

The owner of all three wells is the Marley Pump Company located at 500 East 59th Street, Daveaport, Iowa.

There are no off-site wells within 1,000 feet of the UST.

VIII - Groundwater Barriers Survey

One of Mariey Pump Company's parking lots for this facility is located approximately 40feet west of the testing facility lean-to. Additional parking lots are located on the other side of the facility, approximately 650-feet east of the festing facility lean-to and approximately 180-feet south of the testing facility lean-to. The building foundation for this facility is approximately 3.5 feet below grade. This does not pose a barrier for groundwater because groundwater, as measured in the three groundwater monitoring wells, ranges from approximately 11 feet to 15 feet below grade. East 99th street is located south and approximately 130-feet south of the testing facility lean-to.

347

VIII - Receptor Survey

After evaluating the U.S.G.S. 7.5 minute quadrangle and conducting a site survey, surface water bodies such as streams, lakes, and/or ponds are not located within 1,000 feet of the designated petroleum impacted area. The closest surface water body, Goose Creek, is greater than 1,000 feet from the impacted area.

Given the distance of the surface water body from the impacted even and the hydraulic conductivity balldown tests conducted on all three monitoring wells (MW-1: 7.88 x 10 4 cm/sec. MW-2: 9.3 x 10 4 cm/sec, and MW-3: 7.9 x 10 4 cm/sec), the impacted area is believed to be very localized. Therefore, it is not anticipated that any surface water body will be affected. Furthermore, it is not anticipated that any surface water body will be conducted.

VIII - Conduit Survey

Seneca Environmental Services (April 1992), had stated in their environmental report that a large metal pipe ran through the tank pit excavation from the water well located approximately 20-feet west of the sit in the down-gradient direction. The pipe is approximately two-feet helow the surface of the ground and is set directly in the clay solls, with no sand backfill around it. The pipe is situated at a level above the midline of the proposed tanks and the tank are double-walled construction. Seneca had indicated that is was not likely that this pipe will act as a conduit for any hydrocarbon reigration if a leak occurred in one of the underground storage tanks. Figure see the attached figure for durther details.

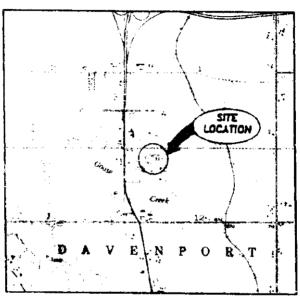
A four-lach diameter steel gas main, buried four-feet below grade, runs merth-south. The buried line is located east of the above ground piging area and the cherch-in-place UST. The back/ill for this buried pipeline is unknown. Please see the attached figure for further details.

A six-inch diameter steel water main, buried 67 inches below grade, raus north-couth. This buried line is located west of the steel gas main and directly south of the closed implace UST. The backful for this line is unknown. Please see the attached figure for further details.

A ten-inch diameter concrete roof drain (storm sewer), buried two-feet below grade, runs north-south and east-west. The east-west extension of this line intersects the new underground storage facility between tanks 2 and 3. The backfill for this buried line is unknown. Please see the attached figure for further details.

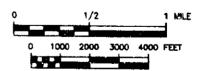
A hy-pass water main is located west of the cloud-in-place UST and south of the new testing facility. The depth at which this line is buried is unknown. The expected diameter of this line is six-inches. The backful for this buried line is unknown. Please see the attached figure for further details.





SOURCE: U.S.G.S. DAVENPORT EAST, IOWA - ILL. (1975)

SCALE: 1-24000



RECEPTOR SURVEY MAP SURFACE WATER BODY SURVEY

The Marley Pump Company 500 E. 59th Street Davenport, lows

RECEPTOR SURVEY MAP CONDUIT SURVEY

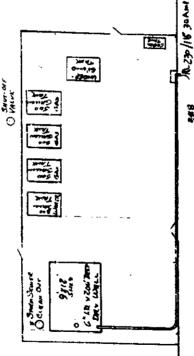
The Morley Pump Company 500 E. 59th Street Davenport, lowa



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TIKY FLECTURE SYMIT

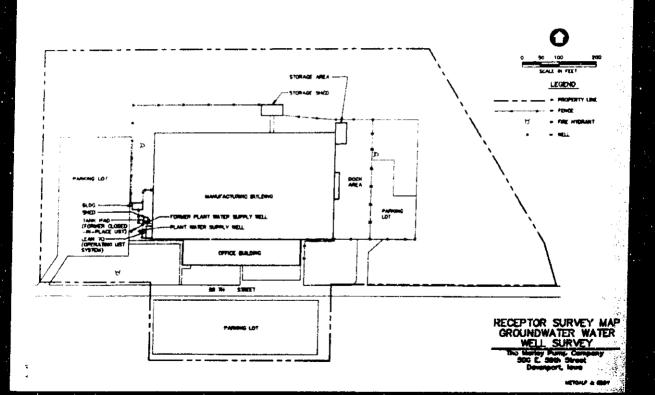


RECEPTOR SURVEY MAP CONDUIT SURVEY

The Mariey Pump Company 500 E. 59th Street Davenport, lowe

LELEPHONE LINE

CALF & EDDY



APPENDIX 12 X - LABORATORY DATA SHEETS

1700 W Albany - Braten Aram, Oklahoma 74012 - 918-251-2858 - FAX: 918-251-2599

CLIENT: METCALE & EDDY

1 FIERCE PLAZA, SUITE 1500 WEST

114SCA 111 60143 ATTN: DENNIS STOREY REPORT: 11076.01TI

DATE: 09-25-92

SAMPLE MATRIXE SOIL FWC0 # 11078.51 METHIC PLIERENEE: (m.) THATE HAMPLEDY GARAGE Dert LOSMITTEN, LA 19 41 THIS WHEN STED: 40 POINT LE TELLE MOSELE COME CO. Seems F. 11:1 March Section

PARAMETER

DET. LIMIT

UN1T

RESULTS

TOTAL F. ESCHELT FERNDLESS H. DROCHARBONS

GASULINE

uq - F c

8.9 J

DA/DC SURROGATE RECOVERY

4 - BRIGMOFL GORDBENZENE

88%

NO IS NOT LETS THE ASCIDENTIFICATION LIMIT

- COMMODING MOCHE IN BLANK AS WELL AS SAMPLE

ESTIMATE VALUE: CONCENTATION RELOW LIMIT OF QUANTITATION

1700 W. Albany . Broken Arrow, Oklohoma 74012 . 918-251-2858 . FAX: 918-251-2599

CLIENT: METCALF & EDDY

1 PIERCE PLAZA. SUITE 1500 MEST

ITASCA ILL 60143 ATTN: DENNIS STOREY REPORT: 11078.02T1

DATE: 09-25-92

SKIM EE MATERIAL JUST Section 11079.

MI HIT REFERENCE: THE SHOPE SERVICE CONTRACTOR

TANK PREMITINGS OF STATE THEFE HEALT SEEDS OF THE SEEDS TeMB: C It: Mww1 :0.5.2

PERAMETER.

DET. LIMIT

UNIT

RESULTS

TOTAL HILL AND PETROLEUM HIDROCHEBONS

SASOLITE

200.00

ug/kg

6.8 J

DA/DC SURROGATE RECOVERY

4 BRUMOFILUOROBENZENE

81%

ND - - NOT BETETTED REDVE CHANTITATION LIMIT

" TIME COURT FOUND IN BLANK AS WELL AS SAMPLE

- FULLWRIED VALUE: CONCENTRATION BELOW LIMIT OF GUANTITATION - THE F TO QUANTITATE DUE TO MATRIX INTERFERENCE

1700 W. Aibons . Broken Arrow, Oklahoma 74012 . 918-251-2858 . FAX: 918-251 2400

CLIENT: METCALF & EDDY

1 PIERCE PLAZA, SUITE 1500 WEST

ITASCA ILL 60143

ATTN: DENNIS STOREY

REPORT: 11078.03TE

DATE: 09-25-92

SHAMPLE MATRILE SDIE 5-WEST # 11 782 7

METHO: REFERENCE CA-1

I G 'F SAMELED! 1901A 97

14 E SUBMITTED - THIS OF THATE ANALYZELE

FRIGERS MARKERS FORE LOS

SAMPLE II: MALL BUT SITE

PARAMETER

DET. LIMIT

TIMU

RESULTS

TOTAL FURTHERIBLE FETFOLE IT -- DECLAPAGNS

GASOL INE

16.16

ug/fg

QA/QC SURROGATE RECOVERY

4-EHOMOFLUDROBENZENE

97%

NO - NOT DEFECTED AFOVE CHANTITATION LIMIT

- COMPEUND FOUND IN SCANN AS WELL AS SAMPLE

= ESTIMATEL VALUE: CONCENTRATION PECOW LIMIT OF DUANTITATION

* IMPARIE TO OFANTITHE THE DO MATRIX INTERPERENCE

1700 W. Albany . Broken Arrow, Oklahoma 74012 . 918:251-2858 . FAX: 918-251-2599

CLIENT: METCALF & EDDY

1 FIERCE FLAZA. SUITE 1500 WEST

TERSCA INL 60143 ATTN: DENNIS STOREY REPORT: 11078.04TI

DATE: 09-25-92

MAMERIE MEDELL SOLD Jown + # 11 79 2 2 METHOD ATHERED BY CHIZ THITE BAME, BUT TO THE BY

144 Bornston La 🖟 🕹 CostE below space

PARTURETE MAREE FORME OF Permit B. 11: No. 7 Turney

PARAMETER

DET. LIMIT

RESULTS

TOTAL - FINANCE PRIFILE M HYDEOCHPEONS

GASCC LNE

હαુલાહ

16.6

DA/OC SURROGATE RECOVERY

4-EMOMORILHORDBENZENE

90%

ND - FIRST DETECTED AND ANTITATION EINIT

S COMMODING FOUND TO SCANA AS WELL AS SAMPLE

EPOINATED VELOCE CONCENTRATION FELOW LIMIT OF QUANTITATION

A CAPTURE TO PROMOTE AND EAST OF MATRIX INTERPERENCE

1700 W. Albany - Broken Arrow, Oklahoma 74012 - 918-251-2858 - FAX: 918-251-2599

CLIENT: METCALE & EDDY

1 PIERCE PLAZA, SUITE 1500 MEST

ITASEA ILL 60143

ATTN: DENNIS SIGNEY

REPORT: 11078.0371

DATE: 09-25-72

DAMBLE MATRIX: SOIL

7 Wast # 11679. Wh

METHOD REFERENCE CF-1

1974 FAMPLEDG 5-15-42 ولودين والأفار والمعالين المعار

THE CONTRACT PERSON

FACES TO MARKET FRAME CO.

AMS 6 110 MW-1 15-17.5

DET. PARAMETER

LIMIT UNIT RESULTS

TOTAL FURNISHED FETFOREUM HILBOCHREONS

GASUL INF

1

ug/+q

ND

GA/OC SURRUGATE RECOVERY

4 - BAUMOF, UDPOBENZENE

79%

ND - NOT DETECTED ABOVE DUANTITATION CIMIT

. COMPRESS FOUND IN PLANT AS WELL AS SAMPLE Ŀ

ASTIMATED VALUE: CONCENTRATION BELOW LIMIT OF BUANTITATION

TO MATER TO MANISTATE THE TO MATRIX INTERFERENCE

State of the control of the property of the state of the state of the control of th SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 W. Albany . Broken Arrow. Oklahoma. 74012 . 918-251-2858 . FAX: 918-251-2599

CLIENT: METCALE & EDDY

1 FIERCE PLAZA, SUITE 1500 WEST

TASCA ILL 60:43 ATTM: DENNIS STOREY DATE: 09-25-92

REPORT: 11078.0411

THREE MATRIX: DOIL

2840 # 11107916E

MATHOR HEFERONIES ON-1

THIE SAMPLES: GREENING 14 HE SUBMITTER 9 16-92

THIS AND VIETE - CHESS VE

PRINCEST: MARLEY ROME . D.

SAMPLE 10: Ma 15 15 15 17 5

PARAMETER.

DET. LIMIT

UNIT

RESULTS

TOTAL PLE GEGE PETROLEUM HYDROLAFBONS

GASOL INC.

4 1,000

ug/hg

ND

QA/QC SURROGATE RECOVERY

A "BROMOFIL DOROBENZENE"

91%

ND : NOT DESECTED APOVE OR UTTERTION LIMIT

ECHI DUND FOUND IN BUT IF AS WELL AS SAMPLE

A FESTIMATED VALUE: SER ENTRATION BELOW LIMIT OF QUANTITATION

(#IDDA) CHANTITATE . E. TO METRIE INTERFERENCE

1700 W. Albany + Suite "C" + Broken Arrow, Oklahoma 74012 + 918-251-2858 + FAY-Q1R-251 2500

LABORATORY QUALITY CONTROL SEQUENCE

METROD

: SW846-8015 (MODIFIED) (IOWA METHOD)

SECURICK DATE

: 09/22/92

INSTRUMENT ID.

MALIE VEGTARCHAL -----

MAPRIZ

: Water SAMPLY ID. : BLANK

SAMPLE AMOUNT : 5.0 ml AMALYSIS DATE : 09/22/92 AMALYSIS TIME

: 07:28

MATS NO. PILEMANE : BLANK

: 6092292\011F1101

DILUTION FACTOR: 1

COMPOUND

OURSTITATION

LIMIT (ug/L)

MOUNT FOUND

(ug/L)

GASCLIME

10.0

10.0 MD

SUPPOUNTE RECOVERY (4-BROMOFLUOROBENSEME) :

101 %

MATRIX SPIKE/KRTRIE SPIKE DUPLICATE RESULTS

COMPOUND

SPIKE COMC. (ug/Kg)

5819.D4 EXMPLE COMC. (bg/Kg) *

5819.04ME MATRIE SPIKE

COMC. (ug/Kg) . RECOVERY

GRECLIME

500.0

16.6

479.1

5819.04MD

MATRIX SPIKE DUPLICATE

PERCENT COMC (ug/Kg) * RECOVERY RECOVERY PERCUIT

GRESLIME

487.2

94.1

(1.7) %

DILUTION PACTORS NOT APPLIED TO THESE CONCENTRATIONS

531-134 II TULENT SAMPLE NO: MN-3 7.5-10

1700 W. Albany + Broken Arrow, Oklahima 74012 + 918-251-2858 + FAX: 918-251-2599

CLIENT: METCALF & EDDY

1 PIERCE PLAZA, STUTE 1500 WEST

17ASCA. ILL. 60143 ATTNI DENISE STORY

REPORT: 11239.018X

DATE: 10-21-92

SAMPLE MATPIXI WATER

59LD # 11239.01

METHOD REFERENCE: SMB46-8020 DILUTION FACTOR: 1

DATE SAMPLED:

10-01-92 DATE SURMITTED: 10-02-92

DATE ANALYZED: 10-06-92

PROJECT: HARLEY PUMP COMPANY

SAMPLE ID: ME-1

CASAMETER GAS CHEDMATOGRAPHY	QUANT,	UNIT	SERU 13
BENZENE TOLUENE ETHYLBENZENE XYLENES	1.0 1.0 1.0	ug/L ug/L ug/L	29 29 29 28

BA SEQUENCE NO: 38240 SA/SC SURROBATE RECOVERZES

4-BROMOFLUOROSENZENE (65-135%) 1022

E . ESTIMATED VALUE (ABOVE LIMEAR RANGE)

ND + NOT DETECTED ABOVE QUANTITATION LIBIT

B - AMALYTE DETECTED IN PLANK AS WELL AS SAMPLE

J . ESTIMATED VALUE : CONCENTRATION RELOW LIMIT OF QUANTITATION

A . W SURPOBATE RECOVERY OUTSIDE OF OC LIMITS ON ORIBINAL RUN AND RERUN. SW # TEST METHODS FOR EVALUATING SOLID WASTE, EPA PUBLICATION WSW346, THIRD EDITION, NOVEMBER 1986

1700 W Albans + Brikin Arrow, Oklahoma 74012 + 918-251-2858 + FAX: 918-251-2599

CLIENT: METCALE & EDDY

1 PIERCE PLAZA, STUTE 1500 WEST

ITASCA, ILL. 60143 ATTN: DENISE STORY REPORT: 11239.0171

DATE: 10-21-92

SAMPLE MATRIX: WATER SWLO # 11239.01

METHOD REFERENCE: GA-1 DILUTION FACTOR: 1

DATE SAMPLED: 10-01-92

DATE SUBMITTED: 10-02-92

DATE ANALYZED: 10-05-92 PROJECT: MARLEY PUMP COMPANY

SAMPLE ID: MW-1

DUANT.

LIBIT

___ RESULTS

TOTAL PURGEABLE PETROLEUM NYDROCARBUNS

GASOL INF

CARAMETER

10.0

ua/L

UNIT

18.5

MACRO SUPROBATE RECOVERY

4-BROMOFLUOROBENZENE

683

- # SURROGATE RECOVERY OUTSIDE OF DC LIMITS ON ORIGINAL RUN AND RERUN.
- NO . NOT DETECTED ABOVE QUANTITATION LIMIT
- T COMPOUND FOUND IN BLANK AS WELL AS SAMPLE
- 3 . ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION
- . . UNABLE TO QUANTITATE DUE TO MATRIX INTERFERENCE

1700 W Albam. + Broken Arrow. Oklahoma 74012 + 918-251 2858 + FAX: 918-251-2599

CLIENT: METCALF & EDDY

1 PIFRCE PLAZA, SIUTE 1500 MEST

ITASCA, ILL. 60143

ATTN: DENISE STORY

REPORT: 11239.028X

DATE: 10-21-92

SAMPLE MAIRIX: MATER

SHLO # 11239.02

METHOD REFERENCE: SW846-B020

DILUTION FACTOR: 50

DATE SAMPLED: 10-01-92 DATE SUBMITTED: 10-02-92

DATE ANALYZED: 10-07-92

PROJECT: MARLEY PUMP COMPANY

SAMPLE ID: MW-2

CAS CHROMATOGRAPHY	QUANT, LIMIT	<u>uar</u>	MESULTS.
DENZENE	50.0	ng/L	748
TOLUENE	50.0	ug/L	42.0
ETHYLBENZENE	50.0	ug/L	322
XYLENES	50.0	ug/L	03. 6

SA SEQUENCE NO. 38241 BA/BC BURROSATE RECOVERYES

4-BROMOFLUOROBENZENE (65-135%) 106%

E . ESTIMATED VALUE (ABOVE LINEAR RANGE)

HE - NOT BETELTED ABOVE QUANTITATION LIMIT

B . AMALYTE DETECTED IN BLANK AS WELL AS SAMPLE

U . ESTIMATED VALUE | CONCENTRATION BELOW LIMIT OF QUANTITATION

SURROGATE RECOVERY OUTSIDE OF RC LIMITS ON ORIGINAL RUN AND RERUN. SW . TEST METHODS FOR EVALUATING SOLID WASTE, EPA PUBLICATION USWEAD, THIRD EDITION, NOVEMBER 1996

1700 W. Albany + Broken Arrow. Okiahoma 74012 + 918-251-2858 + FAX: 918-251-2500

CLIENT: METCALF & EDGY

1 PIERCE PLAZA, SIUTE 1500 WEST

ITASCA, 1LL. 60143 ATTN: DENISE STORY

REPORT: 11239.0271

DATE: 10-21-92

SAMPLE MATRIX: WATER SHLD # 11239.02 METHOD REFERENCE: DA-1 DILUTION FACTOR: 10

DATE SAMPLED: 10-01-92 DATE SUBMITTED: 10-02-92 DATE ANALYZED: 10-07-92

PROJECTI MARLEY PUMP COMPANY SAMPLE ID: NH-2

GUANT.

LIMIT

RESIDETS

TOTAL PURGEABLE PETROLEUM HYDROCARBONS

BASOL I NE

PARAMETER

100.0

ug/L

UNIT

2340.0

96/9C SUBSIDEATE RECOVERY

4-EROMOFLUDROBENZEME

- SURROGATE RECOVERY OUTSIDE OF OC LIMITS ON ORIGINAL RUN AND RERUN.

ND - NOT DETECTED ABOVE QUANTITATION CIMIT

. COMPOUND FOUND IN BLANK AS WELL AS SAMPLE

. ESTIMATED VALUES CONCENTRATION BELOW LIKET OF QUANTITATION

* UNABLE TO QUANTITATE DUE TO MATRIX INTERFERENCE

1700 W Albany - Broken Arrow, Oklahomu 74012 - 918-251-2858 - FAX: 916-251-2599

CLIENTA METCALF & EDBY

1 PIERCE PLAZA, SIUTE 1500 WEST

ITASEA, ILL. 60143 ATTHE DENISE STORY

REPORT: 11239.038X

DATE: 10-21-92

SAMPLE MATRIXE MATER

SWLG W :1239.03

METHOD REFERENCE: SW846-8020

PILUTION FACTOR: 5

DATE SAMPLED: 10-01-92

PATE SUBMITTED: 10-02-92 DATE AMALYZEDI 10-08-92

PROJECT: MARLEY PUMP COMPANY

SAMPLE ID: MW-3

CARAGE IER	RUANT.	INUT	REBULTS
BENZENE	5.6	ug/L	ND
TOLUENE	5.0	ug/L	22.2
ETHYLBENZENE	5.0	ug/L	ND
XYLENES	3.0	ug/L	2.9 J

ON SEQUENCE NO. 39242 PA/SC SURROBATE RECOVERIES

4-BROMOFLUGROBENZENE (65-135%) 1101

E = ESTIMATED VALUE (ABOVE LINEAR RANGE)

NO . NOT DETECTED ABOVE QUANTITATION LIMIT

B . AIMLITE DETECTED IN BLANK AS HELL AS SAMPLE

3 * ESTIMATED VALUE: CONCENTRATION PELOW LIMIT OF GUANTITATION

. SURROGATE RECOVERY DUTSIDE OF QC LIMITS ON ORIGINAL RUN AND RERUN.

BW = TEST METHODS FOR EVALUATING SOLID WASTE, EPA PUBLICATION USW946, THIRD EDITION, NOVEMBER 1986

17(h) W. Albany - Broken Arrow, Oklohoma 74012 + 918-251-2858 + FAX: 918-251-2599

CLIENTY NETCALE & EDBY 1 PIERCE FLAZA, SJUTE 1500 WEST ITASCA, ILL. 60143 ATTN: DENISE STORY

REPORT: 11239.03TI DATE: 10-21-92

SAMPLE MATRIXE WATER 5#L0 # 11239.03 METHOD REFERENCE: CA-1 DILUTION FACTOR: 1 DATE SAMPLED: 10-01-92 DATE SURMITTED: 10-02-92 DATE AMALYZED: 10-05-92 PROJECT: MARLEY PURP COMPANY SAMPLE ID: HM-3

CLIANT . PARAMETER LIMIT

RESILTS

TOTAL PURGEABLE PETROLEUM HYDROCARBONS

GASOLINE

10.0

ag/L

NO

NOTE: THE ELUTION PATTERN OF THIS SAMPLE IS NOT CONSISTANT WITH GASOLINE

MAYOC ZUREGRATE RECOVERY

4-BRONOFLUDROBENZENE

95%

- # . SURROGATE RECOVERY OUTSIDE OF GC LIMITS ON DRIGINAL RUN AND RERUN.
- ND . NUT DETECTED ABOVE QUANTIFATION LIMIT
- . COMPERAND FOUND IN BLANK AS WELL AS SAMPLE
- . ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION
 - . UNABLE TO QUANTITATE DUE TO BATRIX INTERFERENCE

1700 N. Albany - Bristen Arrow, Oklahomia 74012 - 918-251-2858 - FAX: 918-251-2899

CLIENT : METCALF & EDDY

i

1 FIERCE PLAZA, STUTE 1500 MEST

ITASCA, ILL. 60143 ATTHE DENISE STORY

SAMPLE ID: MW-3D

REPORT: 11239.048X

DATE: 10-21-92

SAMPLE MATRIX: WATER SWLO # 11239.04 METHOD REFERENCE: SW046-8020 BILUTION FACTOR: 5 DATE SAMPLED! 10-01-92 DATE SUBMITTED: 10-02-92 DATE ANALYZED: 10-08-92 PROJECT: MARLEY PUMP COMPANY

PARAMETER BAS CHROMATOGRAPHY	GUANT. LIBIT	<u>unit</u>	
DENZENE	5.0	29/L	ND
TOLUEME	5.0	29/L	25.1
ETHYLDENZENE	5.0	29/L	ND
MYLEMES	5.0	29/L	ND

OF REQUENCE NO. 38242 MA/SC SUBSIDENTE RECOVERIES

4-BROMOFLUGROBENZENE (65-135%) 1232

- E . ESTIMATED VALUE (APDVE LINEAR RANGE)
- ND NOT DETECTED AROVE DUANTITATION LIMIT
- B . ANALYTE DETECTED IN BLANK AS WELL AS SAMPLE
- 3 " ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION # . SURROGATE RECOVERY CUTSIDE OF OC LIMITS ON ORIGINAL RUN AND RERUN.
- SW + TEST METHODS FOR EVALUATING SOLID WASTE, EPA PUBLICATION WSW846, THIRD EDITION, NOVEMBER 1985

1200 W Albany + Broken Arrow, Oklahoma 74912 + 918-251-2858 + FAX: 918-251-2599

CLIENT: METCALS & EDDY

1 PIERLE FLAZA, SIUTE 1500 MEST

ITASCA, ILL. 60143 ATTN: DENISE STORY REPORT: 11239.0471

DATE: 10-21-92

SAMPLE MATRIXI MATER SWLD # 11239.04 METHOD REFERENCE: CA-1 DILUTION FACTOR: 1 DATE SAMPLED: 10-01-92 DATE SUBMITTED: 10-02-92 DATE ANALYZED: 10-05-92 PROJECTS MARLET PUNP COMPANY

QUANT.

PARMETER LIMIT

UNIT

MENA TE

TOTAL PURGEABLE PETECLEUM HYDROCARBONS

SAMPLE ID: 34-30

GASOL I NE

10.0

ug/L

MOTE: THE ELUTION PATTERN OF THIS SAMPLE IS NOT CONSISTANT WITH GASOLINE

96/9C SURROGATE RECOVERY

4-BROMOFLUGROBENZENE

104%

- . SURFOGATE RECOVERY DUTSIDE OF OC LIMITS ON ORIGINAL RUN AND RERUN. NO - NOT DETECTED ABOVE QUANTITATION LIBIT
- . CRHEDUND FOUND IN BLANK AS WELL AS SAMPLE
- . ISTINATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION 3
- * UNABLE TO QUANTITATE DUE TO MATRIX INTERFERENCE

1700 W. Alberty . Broken Arrow, Oklahoma 74012 . 918-251-2858 . FAX: 918-251-2500

CLIENTE BETCALF & EDDY

1 FIERCE PLAZA, STUTE 1500 WEST

ITASCA, ILL. 60143 ATTN: DENISE STORY

REPORT: 11239.03BX

DATE: 10-21-92

SAMPLE MATRIX: WATER SMLC # 11239.05

HETHOD REFERENCE: SH846-8020

DILUTION FACTOR: 1

DATE SAMPLED: 16-01-92 DATE SUBMITTED: 10-02-92

DATE AMALYZED: 10-06-92

PROJECT: MARLET PUMP COMPANY

SAMPLE ID: RINSATE

CARACTER	BUANT.	1007	REDULTS
GAS CHROMATOGRAPHY			
BENZENE TOLUENE ETMYLBENZENE XYLENES	1.0 1.0 1.0	ug/L ug/L ug/L ug/L	MD MD MD 0.5 J

GA SEQUENCE HD: 32240 **GA/RC BURROGATE RECOVERTER**

4-BROMOFLUOROBENZENE (65-135%)

- E ESTIMATED VALUE (ABOVE LINEAR RANGE)
- NO NET DETECTED ABOVE QUANTITATION LIMIT
- B AMALYTE DETECTED IN BLANK AS WELL AS SAMPLE
- J . ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF RUNNTITATION
- # = SURFOGATE RECOVERY CUTSIDE OF DC LIMITS DN ORIGINAL RUN AND RERUN.
- SW = TEST METHODS FOR EVALUATING SOLID WASTE, EPA PUBLICATION #88846, THIRD EDITION, NOVEMBER 1984

1700 W Albam . Broken Arrow, Oklohoma 74012 . 918-251-2858 . FAX: 918-251-2599

CLIEN'S METCALF & ELDY

1 PIERCE PLAZA, SIUTE 1300 WEST

ITASCA, ILL. 60143

ATTN: DENISE STORY

REPORT: 11239.05TI

DATE: 10-21-92

SAMPLE MATRIX: MATER SWLD # 11239.05 METHOD REFERENCE: DA-1 DILUTION FACTOR: 1 DATE SAMPLED: 10-01-92 DATE SUBMITTED: 10-02-92 DATE ANALYZED: 10-05-92 PROJECT: MARLEY PUMP COMPANY

PARAMETER

DUANT. LIMIT

UNIT

RESULTS

TOTAL PURGEABLE PETROLEUR HYDROCARBONS

SAMPLE ID: RINSATE

BASOL I NE

10.0

ug/L

N

GAZEC_BURROGATE RECOVERY

4-BROMOFLUGROBENZENE

88%

- # . SUREDGATE RECOVERY DUTSIDE OF OC LIMITS ON ORIGINAL RUN AND RERUN.
- NO . NOT DETECTED ABOVE QUANTITATION LIMIT
- B . COMPOUND FOUND IN BLANK AS WELL AS SAMPLE
- J . ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION
- . UNABLE TO QUANTITATE DUE TO MATRIX INTERFERENCE

APPENDIX 13 XII(B) - OFF-SITE CONTAMINATION SOURCE SUPPORT DATA

Not applicable.

XIII - Site Risk Classification Justification - Question 7

MCLs as per Federal Register 56:3526, Final July 1992

Benzene - .005 mg/l Ethythenzene - 0.7 mg/l Toluene - 1 mg/l Xylene - 10 mg/l

Action Level as per IAC 135

Benzene - 0.005 mg/l Ethylbenzene - 0.7 mg/l Toluene - 2.42 mg/l Xylene - 12.0 mg/l

Monitoring wells MW-1, MW-2, and MW-3 were completed 24.8 feet, 23.5 feet, and 21 feet, respectively, below grade. The laboratory analytical data for sells indicated that the IDNR action levels for TPH were not exceeded.

The monitoring wells were drilled with 4.25 LD hollow stem augers. The monitoring wells were constructed with 2-inch diameter, 16-foot long, 6.010 linch slot Schedule 40 PVC well screens and Schedule 40 PVC risers. The annular space was filled with clean sund two feet above the screened interval. At least two feet of hydrated bentonthe pelicis were placed on top of the sand pack. The remaining annular space was completed with consent-bestonite grout. A five-foot long steel protective cover was installed around each monitoring well. The protective cover was cemented in place. A concrete collar was placed around the steel protective cover. The cement collar sloped away from the steel protective cover to prevent water from seeping into the annular space. Approximately 1-foot of bestonite pelicis were placed inside and between the steel protective cover and the manitoring well. Monitoring well caps were placed on top of all three monitoring wells. Locks were provided for the steel protective covers. The monitoring wells were further protected with 4° x 4° wooden timber posts.

The radius of influence for these monitoring wells is minimal. The radius of influence would include the 2-inch diameter well and the soil immediately surrounding the annular space. A pump test was not conducted in these monitoring wells, therefore the actual radius of influence is unknown. These wells are to be used only as monitoring wells.

Hydraulic conductivity baildown tests were conducted in each of the three monitoring wells. Using the Bower-Rice equation for determining hydraulic conductivity (permeability), the following results were determined:

MW-1: $K = 7.88 \times 10^4$ cm/sec T₂: 3.08 x 10^4 ft²/sec MW-2: $K = 9.3 \times 10^4$ cm/sec T₂: 2.39 x 10^4 ft²/sec MW-3: $K = 7.9 \times 10^4$ cm/sec T₂: 2.43 x 10^4 ft²/sec

T, - Transmissivity = Km

$K = R^2/2L[T(j) - T(j)] \times in(I/R) \times in [H(T_i)/H(T_i)]$ [H(T_i)/H(T_i)]

K - Hydraulic Conductivity

m - Aquifer Thickness

The conductivity illustrated above are indicative of silts, glacial tills, and losses (Freeze and Cherry, 1979).

Soil analytical results for all three monitoring wells are as follows:

MW-I: 7.5 - 10.0 ft., 0.0088J ppm TPH 17.5 - 20.0 ft., 0.0068J ppm TPH

MW-2: 5 - 7.5 ft., None detected poin TPH

MW-3: 7.5 - 10.0 ft., 0.0166 ppm TPR

MW-3: 15.0 - 17.5 ft., None detected ppm TPH

The substance which is to be addressed is gasoline. Gasoline consists of a wide variety of hydrocarbons. Benzene, ethyshenzene, tohuene and xylene (BETX) will be used as surrogate parameters for the wide variety of hydrocarbons found in gasoline. Although blodegradable, gasoline may persist in the environment while adsorbed on sell particles, floating on groundwater as a separate phase liquid, or dissolved in the groundwater. Gasoline constituents may migrate, however, the rate of migration is controlled by the geology of the impacted area.

Physicochemical cheracteristics of gasoline and BETX compounds are presented below:

CHEMICAL	FLASH POINT (F)	FLAMMABLE LIMITS (%)	DENSITY (at 20°C)	SOLU- RILITY (% at 28°C)	VAPOR PRESSURE (mm fig)	HENRY'S LAW CONSTANT
garoline	-36	1.3 - 7.4	6.73	NA	383	NA
реплен	12	1.3 - 7.1	9.88	0.18	75	240
teluene	40	1.3 - 7.1	e.B7	9.05	22	330
eth y thenzene	59	1.6 - 6.7	0.87	0.02	7.1	350
xylene (all- isomers)	81 - 90	1.0 to 7	0.86 to 0.88	imatis- cible	,	not appli- cable

Due to the low permeability of the soils, the migration potential of these constituents is low.

SUMMARY OF EQUATIONS FOR DETERMENING HYDRAULIC CONDUCTIVITY, K:

$$E = \frac{R^2}{2L(\Pi(2) - \Pi(1))} + \ln\left(\frac{L}{R}\right) + \ln\left(\frac{B(\Pi(1))d\Pi(\Pi(0))}{B(\Pi(2))d\Pi(\Pi(0))}\right) = EQUATION (1)$$

WHERE

K = HYDRAULIC CONDUCTIVITY

L = LENGTH OF WELL SCREEN

R = RADIUS OF WELL

T = TIME IN SECONDS FROM START OF TEST

H = DIFFERENCE IN WATER HEAD BETWEEN WATER LEVEL AT TIME "T" AND THE STATIC WATER LEVEL

1) MONTTORING WELL MW-1

$$K = \frac{(0.08)^2}{2 \cdot 12.18(12,000 - 3,000)} \cdot \ln\left(\frac{12.18}{6.08}\right) \cdot \ln\left(\frac{0.51}{0.06}\right) \text{ EQUATION (2)}$$

 $K = 2.59 \times 10^{-7}$ Afrec $K = 7.88 \times 10^{-5}$ cm/sec

EQUATION (3)

2) MONITORING WELL MW-2

$$K = \frac{(0.08)^3}{2 \cdot 7.18(9,000 - 3,600)} \cdot \ln\left(\frac{7.18}{0.08}\right) \cdot \ln\left(\frac{0.30}{0.14}\right) = EQUATION (4)$$

 $K = 3 \times 10^{-7}$ M/sec $K = 9.3 \times 10^{-4}$ cm/sec

EQUATION (5)

3) MONITORING WELL MW-3

$$K = \frac{(0.06)^2}{2 \cdot 11.6(9,000 - 4,800)} \cdot \ln\left(\frac{11.6}{0.06}\right) \cdot \ln\left(\frac{0.41}{0.29}\right)$$
 EQUATION (6)

$$K = 2.6 \times 10^{-7}$$
 M/mc $K = 7.9 \times 10^{-6}$ cm/mc

EQUATION (7)

Metcalf & Haly Hydraulic Conductivity

90/37-01

Boring # MW-2 Depth 25-28*

10 mm - 17 mm

Description: CL Gray green siley sendy ican clay with trace organics

• 19% 7, 111.1 pcf G' 2.68

Bydraulic Occdentivity:

1.5 x 10° cm/sec

@ hydraulic gradicat = 6
Tested in accordance with ASTM D 5084-98.

The data gathered for this sample was collected from a Shelby tube. The soil was collected from NW-2, below the silt strats.

XIII - Site Risk Classification Justification, Question 11

Groundwater analytical results for monitoring well MW-1 indicate that BTEX constituents were below the laboratory detection limits.

Groundwater analytical results for MW-2 indicate the presence of BTEX constituents in the groundwater. Benzene, 0.748 ppm, exceeds both the MCL and the IAC action level. Tobsene, 0.042 ppm, does not exceed the MCL or the IAC action level. Ethylbenzene, 0.322 ppm, does not exceed the MCL or the IAC action level. Xylene, 0.0836 ppm, does not exceed the MCL or the IAC action level.

Groundwater analytical results for MW-3 indicates the presence of BTEX constituents. Benzene and ethylbenzene were not detected in MW-3. Toluene, 0.0222 ppns, did not exceed the MCL or the IAC action level. Xylene, 0.0028J, was detected, however it was below the laboratory detection limits.

XIII - Site Risk Classification Justification, Question 13

Two facility production wells and one facility test well are located within approximately 50 feet of the petroleum impacted area. One production well is currently out of service. This well is approximately 240 feet deep and is cased with steel through the upper aquifer. Another facility production well, currently in use, provides water to the facility for industrial processing and personal consumption. This well is approximately 240 feet deep and is cased with steel through the upper aquifer where the petroleum impacted area exists. The test well was used to test the facility's jet pumps and is currently not in use. This well is cased with steel through the upper strata. The test well was not used for facility production nor personal consumption. Water for personal consumption is not obtained from the upper aquifer.

The soil permeabilities are very low: MW-1 - 7.88 X 19 4 cm/sec, MW-2 - 2.39 X 18 4 cm/sec, and 2.43 x 10 4 cm/sec. And, benzene, the only component greater than the MCL, is a floater and will not penetrate vertically through approximately 208 feet of \pm 10 4 cm/sec clay, silts, glacial tilk.

The potential for the facility's production wells to be impacted is low because all the deep wells are steel cased through the upper impacted strata.

XIII - Site Risk Classification Justification, Question 14

The material consist of sihs, losses, and/or glacial tills whose hydraulic conductivity is not greater than $\pm 10^4$ cm/sec or 10^4 m/day. Furthermore, the TPH levels in the subsurface soils did not exceed the IDNR action level of 100 mg/kg.

The material is uniform where the investigation was performed. The material consists mainly of silts with no intermittent sand or clay layers.

Hydraulic conductivity tests were performed in all three monitoring wells.

3+1. .. . + 150

Please see responses 12 Appendix 14, Question 7, Site Risk Classification Justification; Appendix 12, Laboratory Data Sheets; and Appendix 5, III(E) - DNR Form 542-1392, Soil Boring Logs for further details and information.

XIII - Site Risk Classification Justification, Low Risk Site Conditions Question 1

Soil TPH did not exceed the 100 mg/kg action level. However, benzene, the only BTEX constituent exceeded the IDNR action level.

APPENDIX 15

XIV(A3) - TREATMENT TECHNOLOGY EVALUATION HIGH RISK SITES ONLY

APPENDIX 15 XIV(A4) - TREATMENT TECHNOLOGY EVALUATION

3.1

To proceed with determining a treatment technology without determining the extent of contamination is premature. The area of impact is unknown, therefore a determination of an approximate volume of contaminated groundwater can not be calculated. When the Markey Pump Company determines the extent of contamination at this facility, then those items listed in Section XIV, Corrective Action Response, will be addressed.

APPENDIX 16

XIV(A4) - BEST AVAILABLE TECHNOLOGY EVALUATION

Not applicable.

APPENDIX 17

XIV(B2) - BEST MANAGEMENT PRACTICE LOW RISK SITES ONLY

Please see response to Appendix 15, XIV (A3).

APPENDIX 18 XIV(B3) - MONITORING PLAN (LOW RISK SITES ONLY)

Please see response to XIV (A3).





FEDERAL EXPRESS

BOB BEST Corporate Director Environmental Affairs

May 21, 1992

VOID -- VALOR

Ms. Backy Schwiete Environmental Specialist Underground Storage Tank Section Iowa Department of Natural Resources Wallace State Office Building Des Moines, Iowa 50319

Re: Tank Registration No. 7520056 - LUST No. 8LT684

Dear Ms Schwiete:

I am in receipt of your April 23, 1992 letter concerning the referenced facility.

As requested in your letter we are hereby submitting written notification of the registered groundwater professional we anticipate using for this project. This individual is Elizabeth City, Mo. 64152.

It is our intent to submit a completed SCR within the 180 day time frame indicated.

If you have any questions please give me a call.

Sincerely,

THE MARLEY COMPANY

Boo Best

Corporate Director Environmental Affairs

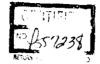
BB:mr

r**ud#92** (178

OS WAY SE SOURCES

CEPTIFIED MAIL

April 23, 1992



Bob Best Marley Company 1900 Shawnee Mission Parkway Mission Woods, KS 66205

SUBJECT: Petroleum Contamination - 500 East 59th St., Davenport Tank Registration No. 7910056 - LUST No. 8LTS84

Dear Mr. Rest:

This department was informed on April 7, 1992 of contamination at the referenced facility. As a result of this contamination, this department under Subrule 135.8 of Chapter 135 of the Iowa Administrative Code (IAC) is requiring that you take the following actions:

- Within 30 calendar days after receipt of this letter, provide written notification to the Underground Storage Tank Section of this department identifying the registered groundwater professional you have retained for this project and your intent to follow the schedule contained in this letter.
- 2) If you have an active tank system and intend to maintain the system, perform a system tightness test to determine whether a leak exists in that portion of the tank system that routinely contains product, including the attached delivery piping. Provide the department a complete copy of system tightness test and actions taken to repair the system in the Site Cleanup Report (SCR) as Appendix II(C). If system failure is indicated, the system must be immediately emptied. The system may be placed back into operation only after repair or replacement and successfully passing a subsequent system tightness test.
- 3) Within 180 calendar days after receipt of this letter, submit the SCR. The enclosed SCR guidance must be followed. Incomplete SCRs and SCRs not submitted in the format required by this document will be rejected.

Please be aware that Subrule 134.3(3) of the IAC requires a person who provides subsurface soil contamination and groundwater consulting services or who contracts to perform or supervise remediation or

corrective action services at leaking underground storage tank sites be a registered groundwater professional. Insure that the consultant and/or contractor you select is registered as a groundwater professional with the department.

The department will approve the SCR upon determination that implementation of the corrective action response will adequately protect human health, safety and the environment. Upon approval of the SCR, you will be required to implement the corrective action recommendations. You must monitor, evaluate and report the results of corrective action activities in accordance with the schedule and on a form or in a format regulred by the department.

If you find you are unable to seet the above schedule, notify the department, in writing, as quickly as possible. In all correspondence regarding this project, please include the LUST number, which is indicated in the Subject heading of this letter.

If you have further questions or if we may be of assistance, please contact Becky Schwiete at 515/242-6488 or Verne Schrunk at 515/281-6704.

Sincerely,

Bed Johnson

BECNY SCHWIETE
ENVIRONMENTAL SPECIALIST
UNDERGROUND STORAGE TANK SECTION

BS/s84scr

Attachments

cc: Field Office 6
GAB Business Services

Bub Best Marley Compar 1900 Shawnes



April 9, 1992

BOB BEST Corporate Director Environmental Atlairs

Mr. Verne Schrunk Iowa Department of Natural Resources Underground Storage Tank Division Wallace State Office Euilding, 5th Floor 900 East Grand Avenue Des Moines, Iowa 50319

Re: Marley Pump Company 500 East 59th Street Davenport, Iowa 52807

Dear Mr. Schrunk:

I as enclosing an original copy of the report from Seneca Environmental Services, rather than the fax copy previously sent to you, dated April 3, 1992, regarding the referenced facility.

As I indicated to you over the phone, Seneca collected a soil and water sample at the site as required by the Iowa Underground Storage Tank Program Application. The analytical results indicate the presence of kenzene at 610 ppb.

Please accept this letter as written confirmation of our phone conversation and fulfiliment of our reporting obligations. Please advise us if any additional reporting is required.

I await your comments regarding the appropriate course of action.

Sincerely,

THE MARLEY COMPANY

Corporate Director Environmental Affairs

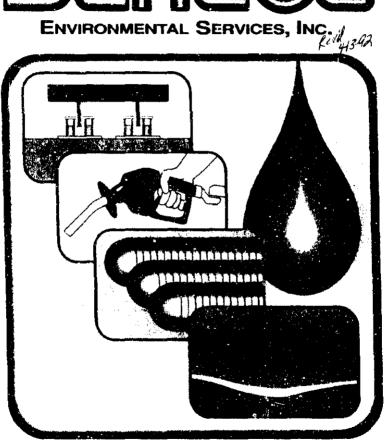
BB: mr

cc: R.F. Wrobel, The Marley Company L.D. Donahue, The Marley Company N.D. LaGrange, Red Jacket Pumps

-015 **2485**

UEPARTMENT OF NATURAL RESOURCES 92 APR 13 PH 12: 14

0



Des Moines ◆ Davenport ◆ Omaha



Seneca Envronmental Services, Incorporated 5113 Trament Avenue - Davenport, Iowa 52807 • (319) 386-2522

April 6, 1992

Mr. Ed Dunning Marley Pump Company 500 East 59th Street Davenport, Iowa 52807

SUBJECT: SITE INVESTIGATION FOR PLACEMENT OF UNDERGROUND STORAGE TANKS FOR HARLEY PUMP COMPANY 500 EAST 59TH STREET, DAVENPORT, IOWA

Dear Mr. Dunning:

We are submitting this letter summarizing our observations of the site investigation and soil testing at the above-referenced location.

On March 18, 1992, Seasca Environmental Services performed a site investigation at Marley Pump Company in the vicinity of the proposed underground storage tank location. The investigation involved the advancement of one borehole to a depth of 25-feet and obtaining a water sample from the borehole. A representative of Seneca Environmental Services was on-site to observe the activities, classify the soils, and to obtain the soil and water samples. The location of the borehole is indicated on the attached site plan map.

DEPARTMENT OF NATURAL RESOURCES

माधासा धारतहरू

•	SITE	NAP	
	ağangener la ≥ aci		
	CDBC91 E 245	r4546	
	in A	MARLEY FORP COMPANY SEE BAST SOTE STREET	
MARK NO. 12"	, 1400 L3CAT S	WYDERET, IDEA	
	Section Management		
		K *#ENCV	
		Building	
בר מב לע ב	₽n.'	Down GRASICHT	
Scale: F = 30°		***************************************	L
	SENECA Environmental Services	Marley Pump Company Devenport, lows	

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Mr. Ed Dunning Marley Pump Company March 26, 1992

A soil sample was obtained from the seven-foot depth of the borehole for laboratory analysis. A water sample was obtained from the 20-foot depth of the borehole for analysis. The samples were packaged, labeled and placed in iced storage for delivery to NET Midwest Laboratories. Inc., located in Cedar Rapids, Iowa, for analysis of benzene, toluene, ethyl benzene, and total xylenes (BTEX), for total petroleum hydrocarbons (TPH) as gusoline, and for total extractable hydrocarbons (TEH) as found in diesel fuel. A chain-of-custody form accompanied the samples from the sampling site to the laboratory. The results of the laboratory analyses are listed in the Appendix of this letter.

Based upon the preliminary field work and the laboratory results for the soil and water samples, it appears that the soil and groundwater in the vicinity of the proposed tank excavation is not contaminated with hydrocarbons from gasoline or diesel. The analytical laboratory results for the soil sample are below the current lows Department of Natural Resources (IDNR) outlies, quidelines of 100 mg/kg (ppm) for TPH and TEH. The laboratory analytical results for the water sample were found to be Ale mg/b (ppb), which is above the IRMR action quideline of 5.9 mg/L (ppb).

Mr. Ed Dunning Marley Pump Company March 26, 1992

According to the soil boring log, the soils in the vicinity appear to be tight, firm silty clays with low permeability. The hydraulic conductivity of such soils ranges between 10³ cm/sec and 10³ cm/sec (Freeze, et al), with an average grain size of 0.004 mm (Pettijohn, et al). Although the groundwater in the vicinity of the tank pit appears to be impacted at the 20-foot depth, the soils at the seven-foot depth do not appear to have been affected by any hydrocarbon impact. The seven-foot depth is slightly below the level of the bottom of the tank pit.

A large metal pipe runs through the tank pit excavation from a water well located approximately 20-feet west of the site in the down-gradient direction. The pipe is approximately two-feet below the surface of the ground and is set directly in the clay soils, with no sand backfill around it. The pipe is situated at a level above the midline of the proposed tanks and the tanks are of double-walled construction. It is not likely that this pipe will act as a conduit for any hydrocarbon migration if a leak occurs in one of the underground storage tanks. The monitoring system which will be installed will indicate any fuel loss from the tanks or lines and the leak would be mitigated before product could migrate along the pipe line.

Mr. Ed Dunning Marley Pump Company March 26, 1992

Seneca Environmental Services appreciates the opportunity of addressing your underground storage tank needs. If you have any questions concerning this letter or if we can be of further assistance, please give us a call.

Sincerely, Seneca Environmental Services

Fratis Apollo 3000

Heather Morton-Davis Registered Groundwater Professional, ₹1252

REFERENCES

Freeze, Allan R. and Cherry, John A., 1979, <u>Groundwater</u>, Prentice-Hall, Englewood Cliffs, New Jersey, 604 pp.

Pettijohn, F.J., 1975, <u>Sedimentary Rocks</u>, Harper & Row, New York, New York, 628 pp.

SENECA Environmental Services Inc.

Lor. Jol Ged Dni	ation Davenbort low No. 5460 logist/Engineer la Crew White/Stribl	ina			Hole/Well No. BH1 Borehole diameter 7.5 Total Desth of Hole 25.0 feet Depth to Water 29.0 Date Completed 3/18/92
DEPTH N FEET	WELL CONSTRUCTION DETAIL	PID-VAL	S MARS	LITHOLDEY	DESCRIPTION
-Q -	-	-		OL.	Grass - Topsell
-2				二 二 二	Silty Clay, brown, no odor
-4 -6			Ī		Silty Clay, Blight odor, dark gray
-6			I	三	Clayay Silt, light gray, no odor
-10					
-12		:			Claysy Silt, light brown with fine grains of mand, no odor, damp
-14 -16			I		
-18		:			Silty Cley, dank gray, ambedded with fins to medium grained send, no edon, damp
-20	<u>¥</u>	:	1	E CL	Clay, pray-green, wet, no eder
-22					
-24		1			
-56	! -				Total Depth = 25.0 Feet Soil Sample = 3-6-841, 3-7-841
-28	i ! ! !	-			3011 344010 * 3-6-6011, 3-7-6045 5-14-6011 Mater Sample * H-6015
-30			1		



NET Midwest, Inc. Cedar Fails Division 704 Enterprise Drive P.O. Box 625 Cedar Fails, IA 50613 Tel: (319) 277-2401 Faix: (319) 277-2425

ANALYTICAL REPORT

Ms. Heather Morton-Davis SENECA ENVIRONMENTAL SERV.

5113 Tremont Avenue Davenport, IA 52807 03/30/1992

ug/g

uq/q

Sample No.: 163005 Job Number: 92,2095

Sample Description:

Xylenes, Total

Total Evdrocarbons

S-7 BH-1

Marley Pump

Date Faken: 03/18/1992 Date Received: 03/19/1992 Parameter Result Units Date Analyzed/Analyst Total Extractable Hydrocarbons <10. uq/q 03/27/1992 hlk VOLATILES - BTEX (NONAQUEOUS) Benzene <0.5 03/24/1992 mkk uq/q Ethylbenzene <0.5 ug/g 03/24/1992 mkk Toluene < 0.5 03/24/1992 mkk ug/g

Sample introduction performed in reference to EPA Nethod 5030 (purge 6 trap). Analysis performed in reference to EPA Method 8015 for volatile organics using flame ionization detection. (Iowa Method 0A-1, Revisior 7(01/91).

< 0.5

<10.

Method Detection Limits: Benzene <0.5 ug/g; Toluene <0.5 ug/g; Kylenes, Total <0.5 g; Total Hydrocarbons <10. ug/g; Ethyl Benzene <0.5 ug/g

Extractable Hydrocarbo are extracted in accordance with EPA Method 3550 (sonication extraction). Analysis is performed in reference to EPA Method 8100 using flame ionization detection. (Jowa Method CA-2, Revision 7/01/91). Method Detection Limit <10. ug/g

1 // A R. L. Bindert

received

03/24/1992 mkk

03/24/1992 mkk



NET Midwest, Inc. Ceder Falls Division 704 Enterprise Drive P.O. Box 525 Ceder Falls, IA 50613 Tct. (319) 277-2401 Fax: (319) 277-2425

ANALYTICAL REPORT

Ms. Heather Morton-Davis SENECA ENVIRONMENTAL SERV. 5113 Tremont Avenue

Davenport, IA 52807

03/30/1992

Sample No.: 163006 Job Number: 92,2095

Sample Description:

W-BH1 WATER Marley Pump

Date Taken:

03/18/1992

Date Received: 03/19/1992

Result	<u>Units</u>	Date Analyzed/Analyst
0.61	ng/L	03/20/1992 ake
0.25	mg/L	03/20/1992 ake
0.29	mg/L	03/20/1992 ake
0.25	mg/L	03/20/1992 ake
3.7	mg/L	03/20/1992 ake
	0.61 0.25 0.29 0.25	0.61 mg/L 0.25 mg/L 0.29 mg/L 0.25 mg/L

Sample introduction performed in reference to EPA Method 5030 (purge and trap). Analysis performed in reference to EPA Method 5015 for volatile organics using flame ionization detection. (Iowa Method OA-1, Revision 7/01/91).

Method Detection Limits: Benzene <0.002 mg/L; Toluene <0.002 mg/L; Xylenes, Total <0.002 mg/L; Ethyl Benzene <0.002 mg/L Total Hydrocarbons <0.10 mg/L.

R. L. Bindert Project Manager





NET Midwest, Inc. Codar Falls Division 704 Enterprise Drive P.O. Box 825 Cedar Falls, IA 50613 Tel (319) 277-2401 Fax (319) 277-2425

CHAIN OF CUSTODY

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April 8, 1992

BOR MEST Corporate Director Environmental Affairs

Mr. Verne Schrunk
Iowa Department of Natural Resources
Underground Storage Tank Division
Wallace State Office Building, 5th Floor
900 East Grand Avenue
Des Moines, Iowa 50319

Re: Marley Pump Company 500 East 59th Street Davenport, Iowa 52807

Dear Mr. Schrunk:

Per our phone conversation of yesterday, I am enclosing a copy of the report from Seneca Environmental Services, dated April 3, 1992, regarding the referenced facility.

Ar I indicated to you over the phone, Seneca collected a soil and water sample at the site as required by the Iowa Underground Storage Tank Program Application. The analytical results indicate the presence of benzene at 610 ppb.

Please accept this letter as written confirmation of our phone conversation and fulfillment of our reporting obligations. Please advise us if any additional reporting is required.

I await your comments regarding the appropriate course of action.

Sincerely,

THE MARLEY COMPANY

crporate Director Environmental Affairs

BB:mr

CC: R.F. Wrobel, The Marley Company L.D. Donahue, The Marley Company N.D. LaGrange, Red Jacket Pumps

mary3.055



Screen Brumermontal Between, Ingappe.ted \$113 Tromant Avenue - Devengent, Livin \$3807 - (318) 388-3638

April 3, 1992

Mr. Ed Dunning Marley Pump Company 560 East 59th Street Davenport, Iova 52867

SUBJECT: SITE INVESTIGATION FOR PLACEMENT OF

UNDERGROUND STORAGE TANKS FOR

MARLEY PUNP COMPANY

500 EAST 39TH STREET, DAVENPORT, IOWA

Dear Mr Dunning:

We are submitting this letter summarizing our observations of the site investigation and soil testing at the above-referenced location.

On March 18, 1992, Senece Environmental Services performed a site investigation at Marley Pump Company in the vicinity of the proposed underground storage tank location. The investigation involved the advancement of one boxehole to a depth of 25-feet and obtaining a water sample from the boxehole. A representative of Seneca Environmental Services was on-site to observe the activities, classify the soils, and to obtain the soil and water samples. The location of the boxehole is indicated on the attached site plan map.

Continued on Page #2

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SITE MAP tru 4 ten Parter Mariey Pump Compo Devenpert, Izwa MINE Invironmental Survices

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THE BOY BY HARLEY OF

Mr. Ed Dunning Marley Pump Company March 26, 1992

A soil sample was obtained from the seven-foot depth of the borehole for laboratory analysis. A water sample was obtained from the 20-foot depth of the borehole for analysis. The samples were packaged, labeled and placed in iced storage for delivery to MET midwest taboratories, Inc., located in Cedar Falls, Iowa, for analysis of benkene, toluene, ethyl benkene, and total mylenes (STEM), for total petroleum hydrocarbons (TEM) as gesoline, and for total extractable hydrocarbons (TEM) as found in diesel fuel. A chain-of-custody form accompanied the samples from the sampling site to the laboratory. The results of the laboratory analyses are listed in the Appendix of this letter.

Sessed upon the preliminary field work and the laboratory results for the soul and water samples, it appears that the soil in the vicinity of the proposed tank excavation is not contaminated with hydrocarbons from gasoline or diesel. The analytical laboratory results for the soil sample are below the current lows. Department of Matural Resources (IDNR) action guidelines of 100 mg/kg (ppm) for TPM and TEM. The isboratory analytical results for the water sample were found to be 610 µg/L (ppb), which is above the IDNR action quideline of 5.0 µg/L (ppb).

Mr. Ad Dunning Markey Pump Company March 26, 1992

According to the soil boring log, the soils in the vicinity appear to be tight, firm silty clays with low permeability. The hydraulic conductivity of such soils ranges between $10^4\,\mathrm{cm/sec}$ and 10^4 co/sec (freeze, et al), with an average grain size of 0.004 as τ (Pettijohn, et al). Although the groundwater in the vicinity of the tank pit appears to be impacted at the 20-foot dopth, the soils at the seven-foot depth do not appear to have been affected by any hydrocarbon impact. The seven-foot depth is slightly below the level of the bottom of the tank pit.

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14-4-12 : 2 1500 : " MALEY COMMA Mr. Ed Durning Marley Pump Company March 28, 1992 Due to the fact that Senece Environmental Services has identified the presence of certain hazardous substances or contaminants, you should be sware that you have, or may have, the Buty to report said findings to federal, state, or local . authorities in a timely senner. Unless otherwise informed, Senson Environmental Services assumes that said reporting has been properly completed by you. You should send a copy of this letter to the IDMR for their project file regarding underground storage tank activities at your facility. Please cend it to: Mx. Verne Schrunk lows Department of Matural Resources Underground Storage Tank Division Wallace State Office Building, 5th Floor 900 East Grand Avenue Des Hoines, Iowa 50319. One copy of this letter should be sent to GAB for Mr. Mail Searcy 63.5

reimbursement purposes. Please send it to:

P.O. Box 3837 Des Moines, Iowa 50322.

Continued on Page #6

Mr. Ed Dunning Maxley Pump Company March 26, 1992

general Environmental services appreciates the opportunity of addressing your underground storage tank needs. If you have any questions concerning this letter or if we can be of further assistance, please give us a call.

Sincerely, Sames Environmental Services

Thather Mitten-kares

Heather Worton-Davis Registered Groundwater Professional, #1252

REFERENCES

Freeze, Allan R. and Cherry, John A., 1979, <u>Groundwater</u>, Frentide-Hall, Englewood Cliffs, New Jersey, 604 pp.

Fattijohn, F.J., 1978, <u>Sedimentary Rocks</u>, Harper & Row, New York, Hew York, 628 pp. APPENDIX A

BOY ST MARLE. COMPANY

SOIL BORING RECORD

SENECA Environmental Services Inc.

		36/A		A EN	varonmental Services Inc.
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APPENDIX B

LABORATORY ANALYTICAL REPORTS

FOR

SOIL SAMPLES

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NET Michrost, Inc. Tol: (\$18) 277 \$401 Fox. (\$19) 277-9425

ANALYTICAL REPORT

Ms. Heather Morton-Davis SENECA ENVIRONMENTAL SERV. 5113 Tremont Avenue Davemport, IA 52807

03/30/1592

Sample No.: 163005 Job Number: 92,2095

Sample Description: 6-7 Bi-1 5011.

Marley Pump

Date Taken: 03/18/1992		Date Rec	eived: 03/19/19	92
Perapater	Result	Unite	Date Analyzed/	
Total Extractable Hydrocarbona	<10.	nā\ā	03/27/1992	hlk
VOLATILES - BTEX (MONAQUEOUS) Rensene Ethylbensene Tolume Tylenes, Total Tetal Hydrocarbons	<0.5 <0.5 <0.5 <0.5	nd/d nd/d nd/d nd/d	03/24/1992 03/24/1992 03/24/1992 03/24/1992 03/24/1992	akk nkk nkk nkk nkk

Sample introduction performed in reference to EPA Nethod 8010 (purge # trap). Analysis performed in reference to EPA Nethod 8015 for volatile organics using flame ionization detection. (Iowa Method OA-1, Revision 7/01/91).

Method Detection Limits: Bensene <0.5 ug/g; Toluene <0.5 ug/g; xy for all <0.5 ug/g; xy for all xy for all xy for all xy for all xy for xy for all xy for xy

Extractable Hydrocarbons are extracted in accordance with EPA Mathod 1550 (sonication extraction). Analysis is performed in reference to EPA Mathod 8100 using flame ionization detection. (Icwa Mathod OA-2, Ravision 7/01/91). Method Detection Limit <10. ug/g

Bindert

Project Manager



Tel: (318) 277-2401 Fai: (318) 277-3425

ANALYTICAL REPORT

Mark the first of the property

Ms. Heather Norton-Davis SENECA ENVIRONMENTAL SERV. 03/30/1992

5113 Tremont Avenue Davenport, IA 52807

8

Sample No.: 163006 Job Wumber: 92,2095

Sample Description:

N-LH1 WATER

Marley Pump

Date Teken: C3/18/1992 Date Received: 03/19/1992

	Result	Unite	Date Analyzed/Analyzi
VOLATILES . BTEX (WATER	R)		
Benzens	0.61	mg/L	03/20/1992 ake
Ethylbenzene	9.25	mg/L	03/20/1992 ake
Toluene	0.29	mg/L	03/20/1992 ake
Mylenes, Total	0.25	mg/L	03/20/1992 ake
Total Hydrocarbons	3.7	mg/L	03/20/1992 ake

Sample introduction performed in reference to EPA Method 5030 (purge and trap). Analysis performed in reference to EPA Method 8015 for voletile organics using flame ionisation detection. (Towa Nethod 9A-1, Revision 7/01/91).

Method Detection Limits: Sensene <0.002 mg/L: Toluene <0.002 mg/L: Xylenes, Total <0.002 mg/L: Ithyl Benzene <0.002 mg/L Total Wydrocarbons <0.10 mg/L.

Project Manager



NATIONAL ENVIRONMENTAL TESTING, INC.

NST Midwest, Inc. Cear Pets Division 704 Ertesprise Drive P.O. Box 825 Colar Pets, IA 6051 Ter (218) 277-2426 Fax. (218) 277-2426

CHAIN OF CUSTODY

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		A '	100					
LUST NUMBER						Q.	ust sn	E STATUS
FACILITY NAME					TANK	CIT	Y	
LEAK DISCOVER	ED	THRO	UGH					
TANK REMOVAL	(YES	OR NO;	CTTMOM	R	(YES OR	NO)	COTHER)	(USE NEMO)
NUMBER TANKS REMO	VED	(1 - 9	9)	CAUSE	OF LEAK		(Describe)	4ata

NUMBER TANKS I	EMOVED	(1 - 99)	CAUSE 0	F LEAK	(Describ	e) hat-	
"X" THE	1 TO II	NDICAT	E THE	APPE	ROPRIAT	TE RES	PONS	E
PRODUCT								-
[] GASOLINE	[] DEESE	L	[] WAST	TE OIL	[] KEROS	ENE	() FUEL	OIL
[] HYDRAULIC O	C.	[] OTHE	R PETRO	EUM	UNKN	WN		
[] NON-PETROLI	UM/CHEN	(ICAL	(USE	MEMO)	OTT RELE	ASED U	ity	CALLONS
MONITORING DE	VICE IN PI	ACE	(YES/NO)	MONITOR	NO METE	OD	
LEAK STATE	JS							
[] CONTINUING			[] 570	PED		[] UNION	OWN	
LEAK LOCA	TION						,	****
[] SOIL/SUBSOIL	GRO	UNDWAT	ER ()	SURFACI	B WATER	[] WAT	ER SUPPL	¥
RESOURCES								
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SHADED AREAS MUST BE COMPLETED AT THE TIME THE PLR IS INITIATED ITALICIZED/DOUBLE UNDERLINED - MANDATORY EPA REPORTABLE ITEM

MEMORANDUM

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LUST SITE TRACKING

	EUST S	TTE TRAC	KIN	Ĵ
ALILITY NAME	TANK CITY			
ABORATORY ANALYSIS				_
AB DUE DATE REQ (YES OR NO) LAB DUE DATE (45 D	AYS) /	,	
CHANGES (MARQUENCE A)	LAB RECEIVED DAT	E /	1	
SITE ASSESSMENT				
SITE ASSESSMENT START DA	TE /	/	,,,,-	
CONSULT. DUE DATE REQ (YES/	NO) CONSULT. DUE DAT	E (20 DAYS)	/	/
CHANGES (MARQUENCE #)	CONSULT. REC'D DA	TE	1	7
SITE ASSESSMENT PLAN DUE DAT	E REQUIRED (YES OR	NO)		
PLAN DUE DATE (45 DAYS) /	1			
CHANGES (M/SEQUENCE 4)	PLAN RECEIVED DA	TE	1	1
PLAN APPR DATE / / FR	EE PROD LETTER DA	TE	1	1
ASSESSMENT REPORT		77.		
REPORT DUE DATE REQ (YES OR	NO) REPORT DUE DATE	(90 DAYS)	7	1
CHANGES (MARQUENCE A)	REPORT RECEIVED	DATE	1	1
RPT. APPR DATE / / SITI	E ASSESS. COMPLETION	DATE	1	7
CLEANUP				
CLEANUP ACHIEVED THROUGH	VEREXECAVATION	(YES OR NO,		
CLOSE DATE (MILHAM NOT VERIFIED)		1		
UNCONTROLLED SITES REFERRAL	DATE /			
PLAN DUE DATE (# DAYE)	/ / CHANGES	(MANQUENCE A)		
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CONSULTANT				
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STREET	CITY		ST	ZIP
PHONE () "				
CONTRACTOR				_
FIRM NAME	M	NAGER NAM	E	
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LUST SITE ADMINISTRATION

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OWNER ID'L		YES D	R NO).	OWNE	R BRO	KE	Y(N/jU
RESP PARTY	POU	ND	(YES)	R NO)	DATE	FOUND	4 1/519
PRIORITY RAN	KING	(3 DIG	IT NUMBER	·······	DATE E	.R. INIT.	/ /
COST RECOV	/ERY						
START DATE		1 1	· · · · · · · · · · · · · · · · · · ·	COMPL	ETION I	ATE	1 1
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			MEMC	RANDU	v		· · · · · · · · · · · · · · · · · · ·
			MEM	MANU	TVL		

September 28, 1992

Ms. Becky Schweite lowa Department of Natural Resources Underground Storage Tank Section Wallace State Office Building Des Monnes, Iowa 50319

Subject:

1 -487

Petroleum Contamination 500 E. 59th Street, Davenport Tank Registration No. 7919056 LUST No. \$1.TS\$4

Dear Ms. Schweite:

The Marky Pump Company (Marky), located at the above referenced site, is currently conducting a field investigation to meet the requirements of the IAC Chapter 135 by completing a Site Completion Report (SCR).

The SCR was due October 23, 1992, 180 days after receipt of your letter to the Marley Pump Company dated April 23, 1992. Marley has started the site investigation. However, Marley does not anticipate that all the analytical sampling and data compilation will be completed until November 23, 1992. Marley is confident that this deadline can be attained.

If you have any questions regarding this site, please call me at (319) 391-8600 or Denise Story of Metcalf & Eddy. Inc. at (708) 775-0300,

Sincerely.

Richard K. Nelson Human Resources Manager The Marley Pump Company

AND BEST RE